

# MONTHLY WEATHER REVIEW.

WILLIS L. MOORE, Chief U. S. Weather Bureau.

Vol. 40.

SEPTEMBER, 1912.

No. 9.

Editor, P. C. DAY, Climatologist and Chief of Division.

## DISTRICT EDITORS.

### *District No. 1, North Atlantic States.*

Wilford M. Wilson, Ithaca, N. Y.

### *District No. 2, South Atlantic and east Gulf States.*

Charles F. von Herrmann, Atlanta, Ga.

### *District No. 3, Ohio Valley.*

Prof. Ferdinand J. Walz, Louisville, Ky.

### *District No. 4, Lake region.*

Prof. Henry J. Cox, Chicago, Ill.

### *District No. 5, Upper Mississippi Valley.*

George M. Chappel, Des Moines, Iowa.

### *District No. 6, Missouri Valley.*

Montrose W. Hayes, St. Louis, Mo.

### *District No. 7, Lower Mississippi Valley.*

Isaac M. Cline, New Orleans, La.

### *District No. 8, Texas and Rio Grande Valley.*

Bernard Bunnemeyer, Houston, Tex.

### *District No. 9, Colorado Valley.*

Frederick H. Brandenburg, Denver, Colo.

### *District No. 10, Great Basin.*

Alfred H. Thiessen, Salt Lake City, Utah.

### *District No. 11, California.*

Prof. Alexander G. McAdie, San Francisco, Cal.

### *District No. 12, Columbia Valley.*

Edward A. Beals, Portland, Oreg.

## CONTRIBUTING CORRESPONDENTS.

Summaries of weather conditions and meteorological data are contributed by the directors of the following meteorological and other services:

The Meteorological Service of the Dominion of Canada.

The Central Meteorological and Magnetic Observatory of Mexico.

The Meteorological Service of Cuba.

The Meteorological Observatory of Belen College, Habana.

The Government Meteorological Office of Jamaica.

The Meteorological Service of the Azores.

The Meteorological Office, London.

The Danish Meteorological Institute, Copenhagen, Denmark.

The Physical Central Observatory, St. Petersburg, Russia.

The Philippine Weather Bureau, Manila.

The General Superintendent of the United States Life-Saving Service.

The Director-General of Mexican Telegraphs.

Contributions for the MONTHLY WEATHER REVIEW concerning agriculture, transportation, water uses and resources, forestry and similar practical subjects, should be addressed to the editors of the several districts interested in the subjects. The post-office addresses are at the U. S. Weather Bureau local offices in the cities mentioned.

Contributions for the MONTHLY WEATHER REVIEW from foreign correspondents should be addressed to the Chief, U. S. Weather Bureau, Washington, D. C.

Papers on general meteorology should also be addressed to the Chief of the Bureau.

Price of a single copy, 35 cents; \$4.00 per year. Foreign postage additional. District separates, 5 cents each.

## CONTENTS.

### PART I.—CLIMATOLOGY.

1. Climatological Summaries, } Complete for each district;  
Tables, } also issued as separates.  
Maps.

### PART II.—METEOROLOGY.

2. Weather, forecasts and warnings for the month.  
3. Rivers and floods.  
4. Special papers on general meteorology.

### PART III.—GENERAL TABLES AND CHARTS.

5. General Tables.  
I. Climatological data for U. S. Weather Bureau stations.  
II. Accumulated amounts of precipitation.  
III. Data furnished by the Canadian Meteorological Service.

### Part III.—GENERAL TABLES AND CHARTS—Continued.

6. General Charts.  
I. Hydrographs of several principal rivers.  
II. Tracks of centers of high areas.  
III. Tracks of centers of low areas.  
IV. Temperature departures from the normal.  
V. Total precipitation.  
VI. Percentage of clear sky between sunrise and sunset.  
VII. Isobars and isotherms at sea level; prevailing winds.

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT No. 1, NORTH ATLANTIC STATES.

GEORGE W. MINDLING, Acting District Editor.

## GENERAL SUMMARY.

To a considerable extent the conditions that prevailed during the month of August were reversed in September. Temperatures were generally above the seasonal average and rainfall was heavy, especially in the southern part of the district, where drought was experienced in the preceding month. In some sections the rainfall was the heaviest ever recorded in September, and the number of days with precipitation was unusually large. In the Central and Southern States of the district there were instances of excessive rains at many places resulting in damaging floods along the small rivers and creeks. Decidedly cool weather set in about the 28th, and frosts occurred extensively as far south as Maryland and New Jersey.

The following table exhibits the leading features of meteorological interest for the various sections of the district:

States, or parts of States within district No. 1.	Temperature.				Precipitation.				Average number of—	
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Rainy days.	Clear days.
New England.....	58.2	- 0.6	92	25	3.20	- 0.23	6.12	0.78	10	10
New York.....	61.6	+ 0.2	93	25	4.96	+ 1.21	8.82	1.51	13	10
Pennsylvania.....	65.0	+ 1.5	94	25	5.83	+ 2.45	9.34	2.72	12	12
New Jersey.....	65.9	+ 0.2	97	28	4.47	+ 0.57	6.76	2.68	10	12
Maryland, Delaware, and District of Co- lumbia.....	69.6	+ 2.1	102	36	5.66	+ 2.24	9.85	2.07	10	13
West Virginia.....	67.6	+ 2.9	95	30	5.18	+ 2.70	9.18	4.00	9	13
Virginia.....	70.3	+ 2.4	98	38	6.67	+ 3.53	10.20	2.39	10	12

## TEMPERATURE.

Temperatures averaged higher than usual for September at most stations, except in the New England section, where the means for the month were generally below the normal. In much of the southern part of the district temperatures averaged 3° to 5° above the normal, and were nearly equal to those of August. This was due largely to the intensity of the hot period that prevailed during the first decade which produced temperatures rarely experienced in September. Maximum temperatures of 102° were observed in Maryland and Delaware at two stations, and at many others the highest temperatures of this period equaled or exceeded the highest of the midsummer months. This warm period was general over the district, though in the New England States and the eastern part of New York there was a slight deficiency in temperature until the 4th.

The highest temperatures of the month, which occurred at most places about the 10th or 11th, were followed by one or two days with temperatures below the seasonal average, but warmer weather set in again on the 13th and continued until about the 20th.

The third decade was generally cool, the last two days being quite disagreeable with temperatures averaging more than 10° below the normal. Frosts occurred extensively on the 30th, and much damage resulted in northwestern New Jersey and adjacent parts of Pennsylvania and New York. In other parts of the district the injury from frost is believed to have been less than is usually experienced in September.

## PRECIPITATION.

Ample rainfall occurred in all parts of the district, but in some sections the amount was excessive and interfered greatly with all kinds of outdoor work. South of New York the average rainfall was considerably more than 5 inches, and in many places the month's rainfall was 4 or 5 inches in excess of the August amount. In the New England section, where an excess was noted in August, there was in September a slight deficiency as compared with the normal.

The greatest rainfall for the month, 10.20 inches, occurred at Mount Weather, Va., and the least, 0.78 inch, at Norfolk, Mass.

As in August, rain fell at very frequent intervals, and the longest periods of generally fair weather in the central part of the district did not exceed 3 days. In Maine and Massachusetts a period of 7 days beginning with the 22d was practically without rain, and in West Virginia 10 days beginning with the 4th were almost rainless.

Heavy rains occurred extensively on the 1st-2d, 15-16th, and 23-25th, with numerous instances of rainfall at excessive rates, particularly in the third of these storms. This disturbance appeared in the Gulf of Mexico on the 22d and moved slowly northeastward over the Coast Plains, reaching eastern Virginia and Maryland and passing out on the Atlantic Ocean on the 25th. Rain set in over the southern part of the district late on the 23d and continued with little interruption until sometime on the 26th. At some stations rain is said to have been almost continuous for more than 48 hours. This storm gave instances of 2.50 inches or more precipitation within 24 hours at 7 of the 11 stations in Virginia, at 12 stations in Maryland, 4 in Pennsylvania, 3 in New Jersey, and 1 in West Virginia. At Baltimore, Md., 6.07 inches of rain fell within 24 hours on the 24th and 25th, exceeding all previous records for a 24-hour period at that station.

## MISCELLANEOUS.

The percentages of possible sunshine obtained from stations furnishing records indicated a greater degree of cloudiness than has prevailed in any month since April. The number of hours of sunshine averaged only 194, which is less than that for any month since January.

Rivers reached high stages for September in the southern part of the district. The rains of the 22d to 25th raised the East Branch of the Susquehanna River nearly to the flood stage, and high water in other streams forced temporary suspension of work.

SEPTEMBER, 1912.

## MONTHLY WEATHER REVIEW.

1295

TABLE 1.—Climatological data for September, 1912. District No. 1, North Atlantic States.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<b>Maine.</b>																			
Bar Harbor.....	Hancock.....	20	26	55.5	- 3.1	79	8	32	29†	37	3.88	+0.20	1.20		10	12	11	7	William Miller.
Cornish.....	York.....	778	57	58.4	- 0.4	85	8	32	28	39	2.66	-0.95	0.72		11	9	8	13	T. H. West.
Eastport.....	Washington.....	53	40	56.2	+ 1.0	78	15	36	30	25	1.67	-1.30	0.59		12	8	12	10	U. S. Weather Bureau.
Fairfield.....	Somerset.....	90	27	57.4	- 0.3	79	9	33	22†	31	2.00	-1.13	0.91		3	9	7	14	E. F. Parker.
Farmington.....	Franklin.....	450	15	55.2	- 2.9	78	5	32	22†	36	3.53	+0.05	1.33		12	7	6	17	State Normal School.
Gardiner.....	Kennebec.....	163	20	57.6	- 2.2	81	8†	33	30	37	3.42	-0.04	1.59		9	11	5	14	Samuel D. Soule.
Greenville.....	Piscataquis.....	1,140	10	52.9	- 1.4	74	15	31	22	35	4.89	+1.29	1.48		10	10	8	17	U. S. Weather Bureau.
Houlton.....	Aroostook.....	362	10	53.2	- 1.4	80	2†	30	10†	40	1.50	-1.63	0.70	0.5	5	8	3	12	Bangor & Aroostook R. R.
Lewiston.....	Androscoggin.....	185	38	57.8	- 1.4	84	8	38	22†	35	3.45	-0.08	0.94		13	9	7	14	Union Water Power Co.
Madison.....	Somerset.....	287	9	55.4	- 0.8	80	9	33	22	34	3.73	-0.69	1.17		7	14	0	16	William Jardine.
Millinocket.....	Penobscot.....	395	19	55.6	- 1.1	85	6†	35	22	36	3.82	-0.01	1.10		8	13	2	15	H. S. Ferguson.
North Bridgton.....	Cumberland.....	450	43	57.9	+ 0.8	80	16	30	30	35	3.11	-0.46	0.80		8	4	16	10	G. E. Chadbourne.
Orono.....	Penobscot.....	129	10	53.0†	- 1.5	84	5	25	30	38	4.00	-0.29	1.27		4	18	2	5	Agricultural Exp. Station.
Portland.....	Aroostook.....	99	41	58.1	- 1.6	78	6	36	22	31	3.88	+0.51	1.37		14	12	8	10	Bangor & Aroostook R. R.
Presque Isle.....	Oxford.....	505	19	56.2	- 1.0	81	6†	31	22	39	2.19	-1.19	0.95		5	12	8	10	U. S. Weather Bureau.
Rumford Falls.....	Kennebec.....	90	17	58.7	- 0.6	81	6†	31	22	39	2.19	-1.19	0.95		5	12	8	10	S. L. Merriman.
Winslow.....																			Charles A. Mixer.
<b>New Hampshire.</b>																			
Alstead Center.....	Cheshire.....	1,120	8	57.0	- 1.8	75	4†	32	30	28	5.05	+1.73	1.90		15	11	6	13	Hollingsworth & Whitney Co.
Benton.....	Grafton.....	3	3	54.4	- 1.1	76	15	30	30	32	4.40	+1.73	1.90		15	11	6	13	Frank Dewing.
Bethlehem.....	do.....	1,470	20	55.4	- 1.1	76	6	29	30	33	6.12	+2.45	2.11		14	12	6	12	State Sanatorium.
Concord.....	Merrimack.....	350	52	58.8	- 0.3	83	15	36	26	35	3.14	-0.07	1.22		12	7	7	16	Benjamin Tucker.
Durham.....	do.....	88	17	54.8	- 5.7	85	7	34	22†	33	3.03	-1.33	1.44		5	12	10	8	U. S. Weather Bureau.
Franklin.....	Merrimack.....	440	13	59.6	- 0.3	84	6†	35	26†	41	5.09	+0.83	2.00		13	9	7	14	Agricultural Exp. Station.
Grafton.....	do.....	863	26	58.0	+ 0.2	83	6	34	26†	41	4.19	+1.35	1.09		15	4	10	16	Dr. C. P. Webster.
Hanover.....	Cheshire.....	603	78	58.9	- 0.2	83	11	31	28	40	4.86	+0.85	2.43		14	9	5	16	P. R. Kimball.
Keene.....	Hillsboro.....	506	27	61.4	+ 0.3	87	11	36	28	36	1.49	-1.88	0.51		9	10	16	4	Dartmouth College.
Nashua.....	Rockingham.....	125	27	58.0	- 2.1	85	11	32	22†	39	2.90	-0.69	1.92		6	10	16	4	Samuel Wadsworth.
Newton.....	Grafton.....	500	24	56.4	- 1.0	78	6†	33	26	33	3.16	-0.38	0.81		11	12	4	14	Jackson Company.
Plymouth.....																			W. C. Gale.
<b>Vermont.</b>																			
Bloomfield.....	Essex.....	910	9	54.7	- 0.6	77	4	31	30	41	5.24	-1.01	0.50		14	8	8	14	Lyman Falls Power Co.
Cavendish.....	Windor.....	840	17	57.8	- 0.6	83	6	31	30	40	5.48	-1.52	0.80		14	12	9	8	Esther D. Kingsbury.
Chelsea.....	Orange.....	980	13	57.8	- 0.6	83	6	31	30	40	5.48	-1.52	0.80		14	12	9	8	W. F. Dewey.
Manchester.....	Bennington.....	2,096	0	54.6	- 0.5	80	4	33	30	37	5.56	+2.31	1.28		16	8	10	12	N. M. Canfield.
Somerset.....	Windham.....	711	19	56.9	- 0.5	80	4	33	30	37	5.56	+2.31	1.28		16	8	10	12	J. Albert Holmes.
St. Johnsbury.....	Caledonia.....	700	20	57.2	+ 0.5	79	6†	30	28	33	4.73	+2.00	1.23		11	7	6	17	Fairbanks Museum.
Woodstock.....	Windor.....																		John S. Eaton.
<b>Massachusetts.</b>																			
Amherst.....	Hampshire.....	222	23	61.4	+ 1.2	86	11	35	30	37	2.52	-1.01	0.50		14	8	8	14	Agricultural Exp. Station.
Blue Hill.....	Norfolk.....	640	28	60.9	+ 0.1	86	11	34	30	25	1.71	-2.79	0.62		10	8	9	13	Blue Hill Observatory.
Boston.....	Suffolk.....	124	42	63.7	+ 1.0	90	11	40	30	30	1.67	-1.52	0.80		9	7	11	12	U. S. Weather Bureau.
Chestnut Hill.....	do.....	124	32	62.4	- 0.5	87	11	37	29	31	1.72	-1.55	0.71		8	21	3	6	Met. Water Board.
Clinton.....	Worcester.....	370	16	60.6	- 0.6	86	11	34	29	37	2.51	-1.80	1.18		10	8	16	16	Do.
Concord.....	Middlesex.....	139	22	59.4	- 1.3	83	11	36	30	23	1.92	-1.80	1.00		12	7	21	2	Fred A. Tower.
Fall River.....	Bristol.....	200	46	62.6	- 0.3	84	11	36	30	34	2.95	-0.74	1.18		10	14	6	10	C. V. S. Remington.
Fitchburg.....	Worcester.....	550	29	60.8	+ 0.1	88	11	35	29	34	1.70	-1.43	0.65		10	14	6	10	Dr. A. F. Mason.
Framingham.....	Middlesex.....	160	32	62.1	+ 0.1	88	11	35	29	34	1.70	-1.43	0.65		10	14	6	10	Met. Water Board.
Hyannis.....	Barnstable.....	31	21	61.2	- 0.6	86	11	37	30	30	2.21	-1.17	1.05		9	8	17	5	C. F. Sleeper.
Lawrence.....	Essex.....	51	28	62.7	+ 0.7	86	11	37	30	33	2.33	-1.03	1.32		8	5	11	14	Essex Company.
Lowell.....	Middlesex.....	100	27	62.7	+ 0.7	86	11	37	30	33	2.33	-1.03	1.32		8	5	11	14	Props. Locks & Canals.
Middleboro.....	Plymouth.....	53	26	59.9	- 1.0	89	11	30	29	38	1.19	-2.80	0.48		9	5	11	14	A. R. Gurney.
Nantucket.....	Nantucket.....	15	26	62.2	- 0.6	83	8	44	30	18	2.25	-0.48	0.87		10	8	17	5	U. S. Weather Bureau.
New Bedford.....	Bristol.....	88	100	61.4	- 0.5	81	8	38	30	22	2.19	-1.35	1.35		5	20	1	9	City Engineer.
Norfolk.....	Norfolk.....	244	9	57.8	- 0.5	81	8	38	30	22	2.19	-1.35	1.35		5	20	1	9	Ruby H. Martyn.
Plymouth.....	Plymouth.....	27	59.4	- 0.6	86	12	36	23†	42	0.78	0.29	-0.58	0.58		6	9	13	8	Gideon Bowley.
Provincetown.....	Barnstable.....	40	25	61.6	- 2.2	83	8	41	30	27	2.82	-0.81	1.28		5	19	0	11	C. F. P. Bearse.
Rockport.....	Essex.....	25	10	60.6	- 0.6	86	11	37	30	30	2.21	-1.17	1.05		9	8	17	5	State Sanatorium.
Rutland.....	Worcester.....	1,160	10	59.3	- 0.6	86	11	37	30	30	2.21	-1.17	1.05		9	8	17	5	Turners Falls Co.
Turners Falls.....	Franklin.....	200	21	61.0	+ 0.2	83	11	38	30	30	3.08	-0.34	1.14		12	13	9	8	G. S. Newcomb.
Westboro.....	Worcester.....	298	38	62.4	+ 0.4	89	11	32	29	35	1.22	-1.77	0.60		9	6	16	8	Williams College.
Williamstown.....	Berkshire.....	711	31	59.4	+ 0.4	80	7	34	30	30	2.35	-0.53	0.59		11	6	16	8	G. W. Swan.
Worcester.....	Worcester.....	518	20	62.7	+ 1.3	85	11	40	30	27	1.98	-1.13	0.61		10	9	9	12	
<b>Rhode Island.</b>																			
Block Island.....	Newport.....	26	32	63.0	- 1.1	77	6	43	30	17	1.80	- 1.20	0.62		9	11	2	17	U. S. Weather Bureau.
Bristol.....	Bristol.....	53	26	62.1	- 1.6	78	8	41	30	19	2.18	- 1.37	1.34		9	12	14	4	N. G. Harreshoff.
Kingston.....	Washington.....	250	23	60.7	- 1.7	83	11	33	30	26	2.87	- 0.99	1.05		8	9	15	6	Nathaniel Heime.
Narragansett Pier.....	Newport.....	22	30	61.6	- 1.1	83	8	37	30	25	3.11	- 0.15	1.35		11	12	10	8	U. S. Weather Bureau.
Providence.....	Providence.....	182	8	62.6	- 0.6	88	11	37	30	29	1.87	- 1.32	0.99		12	8	12	10	Do.
<b>Connecticut.</b>																			
Bridgeport.....	Fairfield.....	20	19	64.7	- 0.8	88	6	38	30	29	3.70	- 1.13	1.13		11	10	10	10	William Jennings.
Canton.....	Hartford.....	900	51	62.0	+ 1.5	89	11	32	30	33	2.65	- 1.20	1.22		11	9	5	16	G. J. Case.
Colchester.....	New London.....	370	26	60.6	- 1.6	85	11	32	30	31	3.18	+ 0.18	1.45		8	9	7	14	S. P. Willard.
Cream Hill.....	Litchfield.....	1,300	16	59.7	- 1.6	84	11	30	30	28	3.42	- 1.10	1.03		14	11	5	14	C. L. Gold.
Danielson.....	Windham.....	300	10																

TABLE 1.—Climatological data for September, 1912. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Connecticut—Contd.</b>																				
Torrington.....	Litchfield.....	625	11	60.9	.....	89	5	32	29	43	2.58	.....	0.65	.....	12	10	2	18	s.	Prof. E. H. Forbes.
Vouintown.....	New London.....	260	27	60.6	+ 0.6	85	11	29	29	36	2.25	- 1.16	1.12	.....	9	9	17	4	sw.	J. L. Herbert.
Waterbury.....	New Haven.....	400	37	63.8	+ 0.6	92	11	34	30	37	2.34	- 1.15	0.80	.....	11	.....	.....	.....	.....	N. J. Welton.
<b>New York.</b>																				
Addison.....	Steuben.....	1,000	22	65.0	+ 3.2	93	10	32	30	36	6.48	+ 3.57	1.21	0	17	15	9	6	sw.	Dr. H. R. Ainsworth.
Albany.....	Albany.....	97	91	63.2	+ 0.9	83	11	36	30	26	3.01	- 0.17	0.70	0	16	8	9	13	s.	U. S. Weather Bureau.
Alfred.....	Allegany.....	1,976	17	61.3	+ 1.5	86	10	26	29	40	4.42	+ 0.99	1.02	0	14	.....	.....	.....	.....	Jerome F. Davis.
Amsterdam.....	Montgomery.....	277	8	60.2	.....	84	7	29	30	30	5.04	.....	1.15	0	13	16	4	10	e.	Emery Elwood.
Athens.....	Greene.....	90	10	63.2	- 0.1	85	11	34	30	28	2.40	- 1.87	0.98	0	12	8	10	12	sw.	E. C. Brooks.
Ballston Lake.....	Saratoga.....	400	8	59.2	.....	82	7	33	30	33	4.96	.....	1.70	0	16	12	7	11	s.	Geo. R. Schaubert.
Bedford.....	Westchester.....	450	21	64.0	- 0.3	86	10	36	29	30	3.61	- 0.41	1.27	0	16	9	16	5	.....	Dr. L. Rosenberg.
Beerston.....	Delaware.....	1,214	0	60.1	.....	86	7	25	30	35	4.02	.....	0.55	0	13	12	6	12	w.	John Q. Barlow.
Binghamton.....	Broome.....	875	21	62.0	+ 2.0	87	10	34	30	32	5.42	+ 2.65	1.97	0	16	4	8	18	e.	U. S. Weather Bureau.
Bouckville.....	Madison.....	1,350	15	60.0	+ 0.3	82	7	28	30	30	4.66	+ 1.68	1.10	0	14	1	13	16	sw.	L. W. Griswold.
Boyd's Corners.....	Putnam.....	560	30	.....	.....	.....	.....	.....	.....	.....	3.12	- 1.46	.....	0	.....	.....	.....	.....	.....	Thomas Manning.
Carmel.....	do.....	500	20	62.8	- 0.6	88	10	33	30	38	3.50	- 1.29	1.10	0	10	14	2	14	nw.	Do.
Chatham.....	Columbia.....	470	11	61.8	0.0	84	7	31	30	31	3.23	- 0.50	0.79	0	15	11	5	14	s.	Morton R. Tank.
Cooperstown.....	Otsego.....	1,250	58	59.6	+ 1.3	83	7	32	30	30	7.85	+ 4.43	2.26	0	16	9	15	6	s.	Elizabeth Keesee.
Corinth.....	Saratoga.....	542	10	.....	.....	.....	.....	.....	.....	.....	5.33	.....	2.30	0	9	.....	.....	.....	.....	A. M. Hollister.
Cortland.....	Cortland.....	1,129	50	62.0	+ 4.1	83	10	31	30	32	5.66	+ 2.24	1.28	0	14	10	8	12	nw.	F. G. Baker.
Cuthogue.....	Suffolk.....	32	13	65.1	- 0.6	86	6	40	30	30	1.68	- 2.41	0.48	0	8	12	14	4	sw.	William A. Fleet.
De Ruyter.....	Madison.....	1,300	9	59.1	- 0.8	80	10	31	30	33	5.53	+ 1.45	0.81	0	15	10	4	16	s.	B. D. Crandall.
Elmira.....	Chemung.....	863	29	64.0	+ 1.2	87	7	37	30	34	6.56	+ 3.74	1.34	0	13	8	13	9	sw.	Thurber A. Brown.
Ephratah.....	Fulton.....	692	0	.....	.....	.....	.....	.....	.....	.....	5.58	.....	1.05	0	15	4	9	17	e.	Victor Gennett.
Glens Falls.....	Warren.....	340	21	60.4	- 0.2	83	8	33	30	38	5.57	+ 1.95	2.50	0	11	6	3	21	sw.	Prof. C. L. Williams.
Gloversville.....	Fulton.....	850	20	58.2	- 1.2	81	9	30	30	31	6.88	+ 3.31	1.45	0	16	7	11	12	w.	W. L. McLean.
Greenfield Center.....	Saratoga.....	314	14	64.1	+ 2.9	87	13	40	30	30	3.37	- 1.01	1.05	0	9	11	15	4	nw.	S. E. Darrow.
Greenwich.....	Washington.....	425	15	61.6	+ 0.2	88	9	31	30	38	4.12	+ 0.21	1.16	0	12	15	6	9	se.	Homer J. Whitcomb.
Griffin Corners.....	Delaware.....	2,260	12	.....	.....	.....	.....	.....	.....	.....	6.79	+ 4.07	1.76	0	17	.....	.....	.....	.....	Harold O. Judd.
Haskinville.....	Steuben.....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	W. G. Collins.
Homer.....	Cortland.....	1,096	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	C. C. Mortimer.
Hoosick Falls.....	Rensselaer.....	410	10	.....	.....	.....	.....	.....	.....	.....	4.18	.....	0.97	0	14	.....	.....	.....	.....	S. L. Cluett.
Indian Lake.....	Hamilton.....	1,705	13	56.2	- 1.0	82	4	28	28	42	4.60	+ 0.88	0.60	0	17	11	6	13	n.	Lester Severie.
Jeffersonville.....	Sullivan.....	1,240	9	60.4	.....	88	10	32	30	39	3.73	.....	1.20	0	10	12	9	9	w.	Chas. Wilfert, Jr.
Liberty.....	do.....	2,300	30	56.8	- 1.2	80	11	29	30	38	5.32	+ 1.60	1.90	0	13	9	4	17	se.	Dr. H. M. King.
Little Falls.....	Herkimer.....	924	14	59.2	- 1.4	82	7	29	30	31	7.52	+ 4.13	2.40	0	13	15	6	9	w.	O. J. Dempster.
Mohank Lake.....	Uster.....	1,245	16	60.6	- 0.7	80	7	24	30	25	3.28	- 1.74	1.95	0	14	11	5	14	s.	A. K. Smiley.
Morehouseville.....	Hamilton.....	1,697	4	54.8	.....	78	6	25	30	35	7.91	.....	1.40	0	18	6	9	15	w.	T. C. Remonda.
Morrisville.....	Madison.....	1,325	0	59.4	.....	81	7	33	28	44	5.56	.....	1.00	0	10	11	11	8	s.	I. M. Charlton.
Mount McGregor.....	Saratoga.....	1,060	0	59.0	.....	79	7	34	30	23	5.04	.....	2.48	0	9	21	5	4	.....	F. W. Tooker.
Mount Hope.....	Westchester.....	200	15	63.6	- 0.4	83	6	40	30	30	4.55	+ 0.61	1.18	0	9	7	11	12	.....	W. A. Cornelius.
Newark Valley.....	Tioga.....	825	25	.....	.....	.....	.....	.....	.....	.....	8.82	+ 5.68	3.45	0	15	.....	.....	.....	.....	Lyman D. Clinton.
New Berlin.....	Chenango.....	1,090	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	Chas. F. Sarie.
New Lisbon.....	Otsego.....	1,234	22	58.2	+ 0.8	84	7	27	30	36	5.92	+ 2.20	1.22	0	18	5	8	17	sw.	G. A. Yates.
New York City.....	New York.....	314	87	65.9	- 0.6	88	11	39	30	22	3.38	- 0.21	1.34	0	10	10	3	17	sw.	U. S. Weather Bureau.
North Creek.....	Warren.....	1,002	4	57.8	.....	82	7	34	30	36	3.45	.....	1.36	0	11	11	4	15	w.	W. G. Kenwell.
Northville.....	Fulton.....	742	10	.....	.....	.....	.....	.....	.....	.....	5.96	.....	1.40	0	11	.....	.....	.....	.....	P. C. Pickard.
Oneonta.....	Otsego.....	1,112	18	61.9	0.0	86	7	33	30	30	3.79	+ 0.29	0.99	0	14	9	6	15	sw.	H. W. Lee.
Oxford.....	Chenango.....	916	47	61.6	+ 2.5	84	7	32	30	26	5.04	+ 2.04	1.20	0	16	4	16	10	w.	John P. Davis.
Port Jervis.....	Orange.....	470	28	63.2	- 0.1	89	10	30	30	35	4.43	+ 0.60	1.32	0	15	10	9	11	nw.	W. H. Neapass.
Roslyn.....	Nassau.....	215	0	65.4	.....	88	10	37	30	36	4.18	.....	1.18	0	11	12	6	12	sw.	C. H. Hechler.
Salisbury.....	Herkimer.....	1,526	15	57.2	- 2.0	80	10	29	30	35	7.18	+ 3.24	1.51	0	13	12	10	8	w.	Joseph Ryan.
Scarsdale.....	Westchester.....	200	8	63.8	.....	86	5	36	30	32	4.72	.....	1.75	0	8	16	4	10	sw.	C. H. Wilmarch.
Setauket.....	Suffolk.....	40	27	64.4	- 0.6	85	11	42	30	20	3.74	+ 0.13	1.22	0	10	15	2	13	e.	Selah B. Strong.
Shirburne.....	Chenango.....	5	.....	.....	.....	.....	.....	.....	.....	.....	6.26	.....	1.70	0	12	.....	.....	.....	.....	E. B. Collins.
Souhampton.....	Suffolk.....	36	11	64.1	- 0.4	84	6	40	30	24	1.51	- 1.76	0.51	0	9	12	14	4	nw.	W. L. Jagger.
Southeast Reservoir.....	Putnam.....	310	7	.....	.....	.....	.....	.....	.....	.....	3.67	- 0.78	.....	0	.....	.....	.....	.....	.....	Thomas Manning.
South Edmeston.....	Otsego.....	1,300	0	60.5	.....	85	7	28	30	33	6.00	.....	1.20	0	13	13	9	8	s.	F. H. Bilderbeck.
Spier Falls.....	Saratoga.....	400	11	59.1	- 0.9	83	8	29	29	33	6.54	+ 2.53	3.45	0	12	4	16	10	sw.	George E. Ffield.
Trenton Falls.....	Oneida.....	751	9	.....	.....	.....	.....	.....	.....	.....	5.70	.....	1.26	0	12	.....	.....	.....	.....	C. W. Young.
Tribes Hill.....	Montgomery.....	268	9	.....	.....	.....	.....	.....	.....	.....	6.60	.....	1.10	0	10	.....	.....	.....	.....	R. S. Marshall.
Utica.....	Oneida.....	537	46	.....	.....	.....	.....	.....	.....	.....	7.60	+ 4.03	1.58	0	13	.....	.....	.....	.....	W. E. Young.
Wading River.....	Suffolk.....	112	6	64.5	.....	89	15	36	29	32	2.33	.....	0.96	0	9	23	2	5	sw.	H. B. Fullerton.
Wappingers Falls.....	Dutchess.....	110	22	62.7	- 0.8	85	11	34	30	27	3.07	- 0.93	0.75	0	10	12	14	4	e.	H. C. Townsend.
Warwick.....	Orange.....	538	18	.....	.....	.....	.....	.....	.....	.....	5.86	+ 1.73	1.55	0	13	13	7	10	.....	John W. Sly.
Waverly.....	Tioga.....	824	30	64.0	- 2.3	92	10	32	30	37	8.15	+ 5.17	1.85	0	21	5	16	9	nw.	J. F. Shoemaker.
West Berne.....	Albany.....	946	13	60.1	- 0.7	85	7	28	30	39	5.35	+ 2.33	1.04	0	14	7	8	15	se.	W. J. Haverly.
West Point.....	Orange.....	167	63	67.1	+ 2.3	90	10	38	30	29	3.25	- 0.49	1.20	0	6	9	13	8	e.	U. S. Military Academy.
Windham.....	Greene.....	1,520	12	60.8	+ 1.2	84	7	33	30	43	3.34	- 0.03	0.82	0	13	9	12	9	.....	A. R. Mott.
<b>Pennsylvania.</b>																				
Altoona.....	Blair.....	1,181	24	.....	.....	.....	.....	.....	.....	.....	5.36	+ 2.60	1.40	0	10	.....	.....	.....	.....	C. W. Billin.
Bethlehem.....	Northampton.....	260	11	68.0	+ 2.4	90	10	38	30	29	5.96	+ 2.								

TABLE 1.—Climatological data for September, 1912. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Greatest daily range.	Total.	Departure from the normal.	Greatest in hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>Pennsylvania—Contd.</b>																			
New Germantown.....	Perry.....	873	8	62.4	.....	91	10	30	22	47	6.21	.....	2.27	0	10	17	4	9	Ed. C. Johnston.
Philadelphia.....	Philadelphia.....	117	41	68.8	+ 1.4	91	10	43	30	23	5.62	+ 2.24	3.51	0	10	9	9	12	U. S. Weather Bureau.
Pocono Lake.....	Monroe.....	1,662	10	58.7	- 0.1	83	10	30	30	35	6.20	+ 1.09	1.13	0	12	7	3	20	Pocono Lake Ice Co.
Reading.....	Berks.....	280	39	67.2	+ 1.5	92	10	37	30	30	6.02	+ 2.63	2.83	0	13	9	9	12	Emil L. Nuebling.
Scranton.....	Lackawanna.....	805	12	63.8	+ 1.6	89	10	36	30	41	6.94	+ 4.08	1.78	0	12	7	8	15	U. S. Weather Bureau.
Selinsgrove.....	Snyder.....	455	24	66.0	+ 1.2	89	10	33	30	30	9.26	+ 5.80	1.60	0	13	0	21	9	J. M. Boyer, C. E.
State College.....	Center.....	1,191	24	65.2	+ 2.3	87	7	36	30	28	4.53	+ 1.70	1.15	0	13	6	15	9	Prof. Wm. Frear.
Towanda.....	Bradford.....	754	17	63.6	+ 1.0	89	10	34	30	32	6.44	+ 3.51	1.51	0	13	13	4	13	Hiram E. Bull, C. E.
Wellsboro.....	Tioga.....	1,327	35	63.8	+ 4.1	90	10	30	30	36	5.39	+ 2.75	1.39	0	13	16	9	5	O. L. White.
West Chester.....	Chester.....	455	58	67.7	+ 2.5	91	10	38	30	27	4.20	- 0.15	2.07	0	9	13	4	13	J. C. Green, D. D. S.
Williamsport.....	Lycoming.....	530	22	66.4	+ 2.4	89	7	36	30	33	5.28	+ 2.07	1.44	0	15	19	0	11	Henry H. Guise.
<b>New Jersey.</b>																			
Atlantic City.....	Atlantic.....	16	39	68.4	+ 0.8	91	6	42	30	25	4.14	+ 1.00	1.87	0	11	12	8	10	U. S. Weather Bureau.
Bayonne.....	Hudson.....	50	22	66.1	- 0.7	91	11	39	30	30	4.27	+ 0.38	1.96	0	10	9	6	15	Erskine R. Eadie.
Belvidere.....	Warren.....	289	22	64.0	- 1.1	87	9	33	30	31	6.01	+ 2.00	1.45	0	13	19	1	10	Samuel J. Hixson.
Bergen Point.....	Hudson.....	37	14	66.0	- 0.7	91	11	40	30	26	.....	.....	2.43	0	.....	10	9	11	Dr. Wm. H. Mitchell.
Bonnton.....	Morris.....	230	22	.....	.....	.....	.....	.....	.....	.....	3.92	- 0.57	1.29	0	13	.....	.....	.....	Joseph White.
Bridgeton.....	Cumberland.....	30	31	69.5	+ 1.3	95	6	38	30	34	4.10	+ 0.20	2.25	0	7	14	4	12	Henry A. Jorden.
Burlington.....	Burlington.....	12	26	.....	.....	.....	.....	.....	.....	.....	4.92	+ 1.00	3.08	0	9	18	1	11	D. S. B. McCoy.
Cape May City.....	Cape May.....	17	34	69.4	+ 0.4	92	6	44	30	23	3.84	+ 0.84	1.84	0	12	10	14	6	U. S. Weather Bureau.
Charlotteburg.....	Passaic.....	719	20	61.8	- 0.5	88	10	33	29	38	4.66	- 0.02	1.12	0	10	12	9	9	George S. Briggs.
Chatham.....	Morris.....	234	10	.....	.....	.....	.....	.....	.....	.....	5.55	+ 0.82	1.60	0	15	.....	.....	.....	M. A. Butler.
Clayton.....	Gloucester.....	126	18	67.8	+ 1.1	91	10	38	30	30	5.47	+ 1.45	1.60	0	7	15	1	14	William T. Farley.
Culver's Lake.....	Sussex.....	848	11	.....	.....	.....	.....	.....	.....	.....	5.92	+ 2.11	1.59	0	16	13	5	12	Brice E. Riker.
Dover.....	Morris.....	600	28	61.3	- 1.3	86	10	34	30	31	5.63	+ 1.15	1.49	0	15	3	12	15	William C. Harris.
Elizabeth.....	Union.....	45	33	65.0	- 2.0	91	11	35	30	31	5.37	+ 1.31	2.15	0	12	12	7	11	L. B. Bonnett.
Flemington.....	Hunterdon.....	140	24	66.3	+ 1.2	92	10	36	30	33	4.12	+ 0.14	2.00	0	11	15	3	12	Hiram E. Deats.
Haddonfield.....	Camden.....	75	25	67.2	+ 1.2	91	10	37	30	32	5.12	+ 1.38	1.73	0	10	13	7	10	Charles F. Richardson.
Hammonton.....	Atlantic.....	103	14	.....	.....	.....	.....	.....	.....	.....	4.53	+ 0.87	.....	0	8	.....	.....	.....	Orville Bassett.
Highwood.....	Bergen.....	90	25	63.8	- 0.4	88	11	33	30	32	4.61	+ 0.45	1.98	0	12	8	9	13	Charles J. Bates.
Imperialtown.....	Monmouth.....	107	24	66.9	+ 0.2	93	10	35	30	38	2.68	- 1.63	.....	0	8	11	9	10	Fred C. Price, M. D.
Indian Mills.....	Burlington.....	76	23	67.1	+ 1.0	94	10	34	30	40	4.06	- 0.11	1.02	0	9	11	8	11	James Armstrong.
Jersey City.....	Hudson.....	10	14	67.2	0.0	92	11	39	30	22	4.38	+ 0.67	1.83	0	11	9	5	16	Samuel K. Pearson, Jr.
Lakewood.....	Ocean.....	54	10	65.4	.....	90	11	38	30	30	3.12	.....	1.41	0	10	3	20	7	Ralph Robertson.
Lambertville.....	Hunterdon.....	95	25	66.4	+ 0.4	90	10	36	30	30	3.63	- 0.55	1.57	0	11	14	6	10	William R. Bowne.
Layton.....	Sussex.....	550	13	61.8	0.0	86	7	28	30	35	4.79	+ 0.92	0.86	0	16	17	3	10	Warren C. Hursh.
Little Falls.....	Passaic.....	175	10	.....	.....	.....	.....	.....	.....	.....	3.95	- 0.65	0.98	0	12	.....	.....	.....	A. Sweetman.
Long Branch.....	Monmouth.....	30	5	65.9	.....	95	11	36	30	30	3.46	.....	1.42	0	10	8	8	14	William D. Martin, Jr.
Mahwah.....	Bergen.....	312	10	.....	.....	.....	.....	.....	.....	.....	4.80	+ 0.24	1.23	0	10	.....	.....	.....	Charles L. Barker.
Moorestown.....	Burlington.....	75	50	65.9	- 0.1	87	6	36	30	26	4.66	+ 0.90	1.75	0	8	14	6	10	George L. Gillingham.
Newark.....	Essex.....	159	69	67.2	+ 1.3	92	10	39	30	30	4.97	+ 1.12	2.14	0	9	10	6	14	Prof. William Wiener.
New Brunswick.....	Middlesex.....	100	59	65.9	- 0.1	93	11	34	30	33	3.45	- 0.40	2.00	0	11	12	6	12	George B. Thrasher.
Newton.....	Sussex.....	678	33	63.4	- 0.2	87	9	33	30	31	5.31	+ 1.63	1.80	0	15	8	6	16	F. Vernon Losee.
Northfield.....	Atlantic.....	25	5	.....	.....	.....	.....	.....	.....	.....	4.07	.....	1.31	0	11	12	8	10	William L. Flick.
Paterson.....	Passaic.....	80	41	65.8	- 0.4	90	6	37	30	29	4.35	- 0.09	1.04	0	12	8	13	9	Heber A. Probert.
Phillipsburg.....	Warren.....	363	22	65.5	+ 0.1	91	11	34	30	31	5.48	+ 1.70	1.30	0	13	14	5	11	D. W. Smith.
Plainfield.....	Union.....	100	26	65.2	0.0	91	11	37	30	32	4.54	+ 0.09	2.75	0	15	11	8	11	John Neagle.
Pleasantville.....	Atlantic.....	26	14	.....	.....	.....	.....	.....	.....	.....	3.66	+ 0.25	1.40	0	11	18	5	7	Lincoln Van Gilder.
Pompton Plains.....	Morris.....	195	10	.....	.....	.....	.....	.....	.....	.....	4.43	.....	0.82	0	13	.....	.....	.....	M. S. Taylor.
Somerville.....	Somerset.....	60	29	65.6	+ 0.3	92	11	35	30	34	4.44	+ 0.78	2.51	0	10	14	6	10	A. A. Macdonald.
South Orange.....	Essex.....	200	42	64.2	+ 0.1	87	11	37	30	25	4.10	+ 0.01	1.30	0	9	9	4	17	Dr. Wm. J. Chandler.
Sussex.....	Sussex.....	442	22	63.2	- 0.7	88	10	31	30	33	6.76	+ 2.85	2.01	0	13	12	5	13	George Dymock.
Trenton.....	Mercer.....	43	41	68.2	+ 1.0	96	10	35	30	35	2.90	- 1.04	1.02	0	9	13	5	12	James L. Bennett.
Tuckerton.....	Ocean.....	25	18	67.1	+ 1.1	90	6	36	30	34	3.38	+ 0.02	1.41	0	7	9	13	8	Frank R. Austin.
Vineland.....	Cumberland.....	118	42	68.2	+ 1.3	97	8	38	30	34	5.24	+ 1.40	1.69	0	9	14	10	6	Alfred Chalmers.
Woodbine.....	Cape May.....	43	21	67.9	+ 1.6	92	7	37	30	30	5.06	+ 1.03	2.35	0	12	.....	.....	.....	Prof. O. E. Williams.
<b>West Virginia.</b>																			
Bayard.....	Grant.....	2,500	10	63.4	+ 2.7	87	10	30	30	45	5.98	+ 3.06	1.05	0	13	14	12	3	Solomon Clark.
Burlington.....	Mineral.....	875	17	67.4	+ 2.2	92	3	37	30	39	4.20	+ 1.31	.....	0	6	17	11	2	J. W. Vandiver.
Franklin.....	Pendleton.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	10	10	15	4	Fred Calhoun.
Lost City.....	Hardy.....	.....	5	65.6	.....	85	3	38	30	29	4.49	.....	2.00	0	10	10	15	4	B. D. Hinegardner.
Martinsburg.....	Berkeley.....	455	21	69.1	+ 2.5	93	10	41	30	36	7.93	+ 5.30	.....	0	10	14	9	7	G. W. Van Metre, C. E.
Moorefield.....	Hardy.....	900	15	71.0	+ 4.4	95	9	37	30	40	4.00	+ 1.49	1.75	0	6	14	14	2	John C. Fisher.
Romney.....	Hampshire.....	824	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	7	9	18	2	John C. Linthicum.
Upper Tract.....	Pendleton.....	1,230	14	69.2	+ 2.7	94	7	34	30	43	4.50	+ 2.35	2.05	0	7	9	18	2	J. M. Mallow.
<b>Maryland.</b>																			
Annapolis.....	Anne Arundel.....	45	40	73.4	+ 3.7	95	6	47	30	24	6.45	+ 2.35	1.75	0	13	11	0	19	U. S. Naval Academy.
Baltimore.....	Baltimore.....	115	42	70.6	+ 2.0	94	6	46	30	24	8.75	+ 4.90	6.07	0	11	11	7	12	U. S. Weather Bureau.
Cambridge.....	Dorchester.....	25	14	72.2	+ 1.4	95	6	44	30	36	6.18	+ 2.62	3.25	0	7	5	8	17	T. E. Keenan.
Cheltenham.....	Prince George.....	230	12	69.8	+ 1.8	91	6	39	30	30	6.81	+ 3.59	2.20	0	10	13	4	13	George Hartnell.
Chestertown.....	Kent.....	80	27	70.2	+ 2.5	94	6	43	30	26	5.20	+ 1.43	0.97	0	13	11	13	6	M. W. Thomas.
Cheswille.....	Washington.....	530	15	68.4	+ 1.9	92	7	36	30	36	4.81	+ 2.41	1.96	0	10	11	15	4	D. Paul Oswald.
Clear Spring.....	.....	650	15	66.9	+ 1.0	88	6	39	30	29	5.95	+ 3.59	3.20	0	12	14	11	5	W. W. Frantz.
Coleman.....	Kent.....	80	14	70.3	+ 0.8	94	6	44	30	33	4.88	+ 0							

TABLE 1.—Climatological data for September, 1912. District No. 1—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	
Maryland—Continued.																				
Pocomoke City.....	Worcester.....	37	19	71.4	+ 1.1	90	7	45	30	25	3.97	+ 0.92	1.50	0	10	18	6	6	e.	Hon. R. M. Stevenson.
Porto Bello.....	St. Marys.....	38	7	68.5	.....	93	6†	46	30	41	.....	.....	.....	0	10	10	3	17	se.	Mrs. Clara C. Hyatt.
Princess Anne.....	Somerset.....	17	19	69.6	+ 1.4	91	10	40	30	34	2.07	- 0.87	1.25	0	7	5	16	9	sw.	J. R. Stewart.
Salisbury.....	Wicomico.....	23	7	71.8	.....	95	7	43	30	38	3.55	.....	0.98	0	9	15	10	5	.....	W. E. Downing.
State Sanatorium.....	Frederick.....	1,460	4	63.2	.....	88	7†	38	30	37	8.91	.....	4.10	0	7	16	9	5	w.	Superintendent.
Sudlersville.....	Queen Anne.....	65	13	69.9	+ 1.4	95	6†	39	30	37	6.43	+ 1.95	2.10	0	12	15	5	10	e.	Henry L. Higman.
Takoma Park.....	Montgomery.....	320	14	68.2	+ 1.0	90	6	41	30	27	5.09	+ 0.74	1.05	0	13	2	18	10	.....	L. M. Mooers.
Van Bibber.....	Harford.....	100	15	68.4 <sup>b</sup>	+ 1.1	94 <sup>b</sup>	6	36 <sup>b</sup>	29	35 <sup>b</sup>	7.24	+ 2.65	5.03	0	6	16 <sup>b</sup>	1 <sup>b</sup>	11 <sup>b</sup>	.....	W. Benj. Ford.
Westernport.....	Allegany.....	1,000	18	70.9	+ 5.1	102	10	37	30	43	4.41	+ 1.99	1.55	0	8	.....	.....	.....	.....	Prof. O. H. Bruce.
Westminster.....	Carroll.....	860	19	69.2	+ 4.2	92	10	40	28	34	5.63	+ 1.72	2.30	0	10	19	4	7	w.	Prof. Geo. F. Morelock.
Woodstock.....	Baltimore.....	392	38	70.5	+ 4.8	90	6†	42	30	28	5.98	+ 2.32	3.24	0	13	12	10	8	w.	Rev. J. F. Dawson, S. J.
Delaware.																				
Delaware City.....	New Castle.....	10	10	69.8	.....	91	6†	42	30	28	4.66	.....	1.70	0	5	18	5	7	ne.	H. Morton Price.
Dover.....	Kent.....	40	24	70.7	+ 2.9	95	10†	39	30	32	4.77	+ 0.81	1.70	0	8	11	11	8	e.	W. C. Josting.
Milford.....	.....do.....	20	28	70.2	+ 2.1	92	6†	41	30	32	2.95	- 1.09	1.25	0	12	13	10	7	e.	Chas. J. Holzmueller.
Millsboro.....	Sussex.....	20	20	70.4	+ 1.8	102	6	42	30	38	3.16	- 0.17	1.10	0	12	15	5	10	ne.	Rev. L. W. Wells.
Seaford.....	.....do.....	40	21	69.4	+ 1.0	90	6†	42	30	30	5.06	+ 1.88	2.45	0	11	12	8	10	s.	E. B. Brown.
Wilmington.....	New Castle.....	86	1	70.8	.....	93	6†	42	30	26	7.28	+ 3.94	2.13	0	11	14	10	6	.....	A. J. Taylor.
District of Columbia.																				
Washington.....	Dist. of Columbia.....	112	42	70.4	+ 2.3	94	11	42	30	33	5.86	+ 2.27	1.75	0	14	10	5	15	s.	U. S. Weather Bureau.
Virginia.																				
Culpeper.....	Culpeper.....	450	4	69.6	.....	93	6	41	30	31	7.64	.....	5.00	0	10	9	15	6	s.	Col. H. C. Burrows.
Dale Enterprise.....	Rockingham.....	1,350	33	69.6	+ 3.0	98	1†	38	30	41	4.76	+ 1.22	2.66	0	10	9	13	8	s.	Rev. L. J. Heatwole.
Eastville.....	Northampton.....	15	2	73.5	+ 2.3	94	6†	49	30	35	2.39	- 1.29	1.10	0	6	15	9	6	sw.	T. B. Robertson.
Fredericksburg.....	Spotsylvania.....	100	23	70.8	+ 1.6	93	6	44	30	30	9.38	+ 6.17	2.45	0	13	13	9	8	ne.	S. G. Howison.
Lincoln.....	Loudoun.....	500	11	69.0	+ 1.2	94	11	39	30	37	9.01	+ 6.01	3.25	0	12	14	12	4	nw.	Dr. Geo. Roberts.
Mount Weather.....	.....do.....	1,726	8	65.5	+ 3.1	86	11	38	30	23	10.20	+ 7.35	5.30	0	12	11	8	11	se.	U. S. Weather Bureau.
Quantico.....	Prince William.....	16	15	69.6	+ 1.2	90	6†	42	26	30	7.02	.....	2.61	0	6	18	4	8	ne.	R. F. & P. R. R.
Staunton.....	Augusta.....	1,380	20	70.4	+ 2.3	97	2	40	30	34	5.81	+ 2.51	2.55	0	12	9	14	7	se.	Ernest Nothnagel.
Warsaw.....	Richmond.....	160	20	72.5	+ 2.9	94	9†	43	30	38	6.54	+ 4.23	2.60	0	11	4	20	6	n.	C. H. Constable.
Winchester.....	Frederick.....	717	1	70.4	.....	92	1†	47	28†	31	6.26	.....	2.04	0	8	18	5	7	w.	Bently Kern.
Woodstock.....	Shenandoah.....	927	16	72.0	+ 4.3	98	11	40	30	40	4.38	+ 1.77	1.55	0	11	10	15	5	w.	Mrs. A. G. Artz.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 1, North Atlantic States.

Stations.	Watershed.	Day of month.																													Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
<b>Maine.</b>																																		
Ashland	St. John																																	
Bar Harbor	Coast			.05		T.		T.			T.	.03				.75	.55		.05	.55	1.20	.05						T.		.35	.30	3.88		
Cambridge	Kennebec										.62					1.00			.07	.50	.42									.97		3.58		
Cornish	Saco	.10	.28	.01			.06	.05			T.	.06			T.	.63			T.	.72	.06	.04			T.					.65		2.66		
Danforth	Penobscot			.12							T.	.20	T.			1.00				.38	.24									.60		2.54		
Eastport	Coast			.13				.01			.04	.15				.17	.09		.02	.04	.42	.01								.18	.41	1.67		
Eustis	Kennebec	.06	T.			.05		.11			.04	1.24					.62		.52	.25	.62	.11						.01		.45	.14	4.22		
Fairfield	do															.91			.18											.91		2.00		
Farmington	do	.10	.02	.04				.14			T.	.14	T.		T.	1.33		.09	.03	.69	.06							T.		.46	.43	3.53		
Gardiner	do	.09	T.					.02				.15				.06	1.59			.51	.14							T.		.32	.60	3.42		
Greenville	do	T.		.26							.29	.20				.65	.10		1.18		1.48	.02						T.		.61	.10	4.89		
Houlton	St. John			.10													.20		.70										.20		.30	1.50		
Howe Brook	Penobscot			.50				.15					.18			.52	.14		.52		.12	.16								.22	.12	2.63		
Lewiston	Androscoggin	.15	.01	.02			.04	.02			.18	.10			T.	.44	.79			.35	.43	.16								.91	.03	3.45		
Madison	Kennebec							.07			.18					1.15			.05	.90	.21									1.17		3.73		
Millinocket	Penobscot		T.	.03				.01			.39					.88			.90	.01	.50									.83		3.55		
North Bridgton	Saco	.16	.14	.06			.04	.13				.21			T.	T.	1.10		T.	.20	.57	.46	.01							.34	.40	3.82		
Oquossoc	Androscoggin																																	
Orono	Penobscot			.20	.29							.65					.80		1.00		.36	.07								.10	.64	3.11		
Patten	do		T.								1.00					1.00			1.00												T.	4.00		
Portland	Coast	.11					.01	.06				.02				.71	.13			.52	.76	T.								.59		2.91		
Presque Isle	St. John			T.						.28						.33			.50	.05	T.										.40	1.84		
Rumford Falls	Androscoggin	.25	.07			.08	.02	.08			.09	.06				.60	.17		.06	.45	1.05									.88	.02	3.88		
The Forks	Kennebec			T.								.50				.50			*	1.85										*	.55	3.20		
Winslow	do	.01														.95			*	*	*	.35								.88		2.19		
<b>New Hampshire.</b>																																		
Alstead Center	Connecticut	.79	.23	.14	.02	T.	.45	.09				.03				.10	1.90		T.	.40	.07	.20			.04					.51	.03	5.05		
Benton	do	.44	.01			.39		.18				.20			*	1.06			.06	* 1.04	T.									1.00	.02	4.40		
Bethlehem	do	.39	.01			T.	.18	.14				.52			T.	1.20	.91		.23	.10	.78	.44							.08	.78	.36	6.12		
Brookline	Merrimack	* 1.07	T.				.28									.60			T.	.02	.03									.38		2.38		
Concord	do	.36	.07	.01			.07	.01				.09			T.	1.20	.02		.01	.90	.07			T.	T.					.33		3.14		
Durham	do	.50				.22										1.44			.64											.23		3.03		
Franklin	do	* .77	.05				.30	.02	.02			.04			.01	T.	2.00		T.	.65	.30	.28			T.					.42	.23	5.09		
Grafton	do																																	
Hanover	Connecticut	.54	.07	.04			.27	.12				.31			T.	.52	.17		.02	.42	1.09									.03	.01	.56	.02	4.19
Keene	do	.50	.20	.15			.50	.29				.01				.07	.02	.43		.03	T.	.11			.05	T.					.48		4.86	
Nashua	Merrimack	.37	.08	.04			.20					T.			T.	.09	.42			.02	.04									.23		1.49		
Newton	do	.45	T.				T.	.08				T.			T.	1.92				.21	.03	T.								.21		2.90		
Plymouth	do	.52	.30	.03	T.	T.	.10	.04				.09			T.	T.	.58		T.	.19	.41									.81	.09	3.16		
<b>Vermont.</b>																																		
Bloomfield	Connecticut	.17	.06			.04	.10	.31	.01		.06	.37					.63		.41	.44	1.30	.33			.13				.08	.58	.22	5.24		
Cavendish	do	.89	.38	.16		T.	.40					.12			T.	T.	.83		.02	1.45	.06			.51	.01				.07	.52	.06	5.48		
Chelsea	do																																	
Manchester	Hudson																																	
Somerset	Connecticut	.38	.03	.42	.01		.18	.01				.11				.06	.15	2.18		.04	.10	.03	.30			.10			.03	.63	.18	4.94		
St. Johnsbury	do	.36	.02			.04	.14	.27	T.		T.	.75	T.			.04	.06	1.28		.10	.70	.79	.24			T.			.02	.51	.24	5.56		
Vernon	do	.50	.30	.23			.11				.01					.24	.10		.02	.02	.30			.06						.38		2.27		
Woodstock	do	* 1.23				.27		.45				.18		.21		.70				.46	.68							.08		.47		4.73		
<b>Massachusetts.</b>																																		
Amherst	Connecticut	.18	.24	.24	.10	.01	.26	.02								.34	.50		.01	.02	.35			.02						.23		2.52		
Ashland	Merrimack	* *	* *	.48			.15					.27			.01	.46				.01	.03									.15		1.56		
Bakers Bridge	do	.12			.05		.24					.10				.95			T.											.20	.03	1.69		
Bedford	do	.57	.12	T.	.04		.22					.11				.10	1.31	T.		.02										.23		2.66		
Blue Hill	Coast	.18	.15	.03	T.		.17					.37				T.	.62		.03	T.	.08	.02								.06		1.71		
Boston	do	.43	.08	T.	.01		.07					.21				.03	.77		T.	.02	T.	T.			T.	T.				.05		1.67		
Chestnut Hill	do	.45	.04	.04		.15						.19				.71				.05	T.									.09		1.72		
Clinton	Merrimack	* *	* 1.00	.01		.15						.02				.65			T.	.01	.10									.39		2.33		
Concord	do	.30	.36	.01	.05		.25					.07				T.	1.18		T.	T.	.02	.03							T.	.24	T.	2.51		
Fall River	Coast	.13	.17	.02		.03	.08				1.00					.03	.13		.02	.07				.01						.23		1.92		
Fitchburg	Merrimack	.52	.24	.04	T.		.48					.01				.02	1.18		T.	T.	.02	.10							T.	.34		2.95		
Framingham	do	* .29	.07	.03		.25						.19				.65				.02	.03									.17		1.70		
Haverhill	do	.15	.21	T.		T.	.21	.01				T.				1.71																		

TABLE 2.—Daily precipitation for September, 1912. District No. 1—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Rhode Island—Con.</b>																																	
Narragansett Pier...	Coast.	.01	.64					T.		.62		1.35	.02			.02	.06		.03	T.	.05					.03					.28	3.11	
Pawtucket.	do.	*	.50	.02				.04				.95				.05			.05	.07	.02					.01					.14	1.85	
Providence.	do.	.26	.23	.01	T.	T.		.05	.02		T.	.99			T.	T.	.06		.01	.06	T.	.01			.01						.16	1.87	
Wallow Lake.	do.	1.50	.15					.15	.08			.18					.08		.05												.25	2.44	
<b>Connecticut.</b>																																	
Bridgeport.	Coast.	.15	.67	.02						1.13		.31				.74		.37	.04						.03	.17					.07	3.70	
Canton.	Connecticut.	* 1.22	.10			T.	.03	T.				.94			T.	.06		.10	T.	.03					.04			.03		.10	2.65		
Colchester.	Coast.	.15	.95				.07				1.45					.26		.08	.02												.20	3.18	
Cream Hill.	Housatonic.	.29	.40	.05	.03	.01	.16	1.03			.57					.27		.18	.05						.03			.06		.29	3.42		
Danielson.	Coast.	.45	.03				T.	.08		.08	2.25	.09				.15		.18		.19					T.		T.				.38	3.80	
Falls Village.	Housatonic.	.60	.19	.04		T.	.08	.64			.75				T.	.10	.15	.14	T.		.08		T.		.08		T.			.31	3.08		
Hartford.	Connecticut.	.74	.37	.12	.01	T.	.02	T.			.48				T.	.01	.01	.07	.01	.08	.01			.02	T.		.02			.17	2.14		
Hawleyville.	Housatonic.	.21	.73	.11					1.47		.55				.03	.55		.15	.02					.02	.21					.11	4.16		
Lake Konomoc.	Coast.					1.40					.85																				.02	2.25	
New Haven.	do.	.32	.58	.03		T.	.01	.05			.25				T.	.18	.46	.26	.04					.03	.09			T.		.02	2.32		
New London.	do.	.01	.74				.01			1.00						.07	.51			.21						.07				.03	2.65		
North Grosvenor.	do.		.39	.13				.10	.14		.25					.04								.01						.31	1.37		
Norwalk.	do.	*	* 1.17								.33					.55		.45	.15					.11	.12		.02			.04	2.94		
Southington.	do.	.15	.70	.20	T.	T.					.65	.05				.20		.05	T.						.05		.05			.20	2.30		
South Manchester.	Connecticut.	*	.72	*	.18	.02	.03				.93					.06				.09					.07					.20	2.33		
Storrs.	Coast.	.01	1.18	.01		.01					.72					.10			T.					T.						.30	2.33		
Torrington.	Housatonic.	T.	.65	.00	.05	T.	.02		.08			.34			T.	.15		.14	.20	T.					.08				.63	.15	2.58		
Voluntown.	Coast.	*	.67					.03			* 1.12					.23			.05	.03										.12	2.25		
Wallingford.	do.	.58	.15	.07							.38					.31		.09	.05						.05	.01				.22	1.91		
Waterbury.	Housatonic.	*	.65	.09				.06			.80					.24		.13	.03						.08	T.		.05		.21	2.34		
West Simsbury.	Connecticut.	*	* 1.50				.07				.63					.04			.08	.26		T.			.10			.06		.11	2.85		
<b>New York.</b>																																	
Addison.	Susquehanna.	.80	.62			.75		.03			.19	.32			.39	.48	.18		.11	.04	T.			.52	1.21	.14	.24	.14		.32	T.	6.48	
Albany.	Hudson.	.59	T.	.30		.06	.42	T.			.21				T.	.67	.03		.01	.12	.19			.01	.04	.04		.04		.27	.01	3.01	
Alfred.	Susquehanna.		.14			.13					T.	.30		T.	.17	.00	.04		.39				.05	.40	.70		.13	.32		.03	1.02	4.42	
Amsterdam.	Mohawk.	.30	.30	.45		.50					.30				T.	.15	.50		.05	1.10	T.			.22	.02	.65	T.			.50		5.04	
Athens.	Hudson.	.98	T.	.32		T.	.10	T.			.06				T.	T.	.36		.08	.16		T.		.06	.18	.02		.02		.06		2.40	
Bainbridge II.	Susquehanna.	1.19	.19			.11					.15					.28		.50					.50	.73	.30	.23	.05	.23		.17	4.63		
Ballston Lake.	Hudson.	1.70	.60	.01		T.	.31				.13				T.	.08	.66		.02	.52	.01			.16	.20		.11		.45		4.96		
Bedford.	Coast.	.18	.56	.19		.02	.09	.01			.38			.02	.02	1.27		.31	.04					.06	.32		.03		.11		3.61		
Beerston.	Hudson.	.34	.39	.15		.10					.32					.52		.52	.41					.20	.55	.14		.06		.32		4.02	
Binghamton.	Susquehanna.	1.86	.06	.01		.10					.04	.12				.37		.28	.24	.01				.79	.99	.20	T.	.11	.23	.01	5.42		
Bouckville.	do.	.23	.55	.05		.71					.13	.17				.30		.05	.22				.52	.28	1.10		.12		.33		4.66		
Carmel II.	Hudson.	1.10	.26								.84					.52		.20						.34		.04		.20		3.50			
Chatham.	do.	.20	.79	.13	.03	T.	.40	.55	.02		.05					.33		T.	.24	.02			T.	.20	.01	.01	.01	.25		3.23			
Cooperstown.	Susquehanna.	T.	.70	.69		T.	.38	.04			.25				2.26		1.10	.10				.03	.36	.70	.55	.11		.12	.36	10	7.85		
Corinth II.	Hudson.		.40			.07					.68					2.30		.65		.72				.15		.12			.24		5.33		
Cortland.	do.	1.28	.12		.09	.09					.08	.30				.43		.08	.46				.95	.50	.55		.18		.55		5.66		
Cutchogue.	Coast.	.13	.47	T.			.19				.48				T.	.29		.09	.11					.09	.11			.18		1.68			
De Ruyter.	Susquehanna.	.69	.07	.43		.19					.37				T.	.13	.78		.06	.18				.63	.56	.81	T.	.13	.49	.01	5.53		
Elmira.	do.	1.34	.27		.11	T.					.32	.07			.06	1.05	T.	.02	.26	T.			*	.23	.38		.18		.50		6.56		
Ephratah.	Mohawk.	.20	.28	.48	T.	T.		.63			.35				.13	.35		.05	.73	.05			.33	.10	1.05			.30	.55	5.58			
Glens Falls.	Hudson.			.25		.05					.51					.90	.60		.07	1.62	T.			.19		.07		.12	.19		5.57		
Gloversville.	Mohawk.	.28	.78	.43		T.	.55	T.			.27				.02	.13	1.12		.20	.62	.12			.20	.11	1.45		.05	.55		6.88		
Greene II.	Susquehanna.	.48	1.55	.11		.10										.48			.79				.45	1.15	.48	.05	.12	.25	.10	6.11			
Greenfield Center.	Hudson.	.10	.30							.18	.11	.50					.48		.60			.10	1.05			.43					3.37		
Greenwich.	do.	.31		.30		.15					.20					.20	1.10		.03	1.16				.03	.04		.12	.48		4.12			
Griffin Corners.	Delaware.																																
Hancock.	do.	.30	.95	.06							.25					.42				.34				.61		.70	.10	.08		.32	4.13		
Haskinsville.	Susquehanna.	* 1.76	.15		T.	T.	.10				.32			1.10	*	1.07		.20	.14				.52	.92	.10	.08	.08		.20	.05	6.79		
Homer.	do.																																
Hoosick Falls II.	Hudson.	T.	.28	.32	.15		.20	.02			.10					.34	.97			.15	.87			.10				.11	.05	.42	4.18		
Indian Lake.	do.	.50	.05	.50		.05	.30				.10					.30		.35	.10	.60	.25			.20	.15	.40		.15	.50	.10	4.60		
Jeffersonville.	do.	1.20		.11		T.					T.	T.			T.	.31		.12	.32	.07			.27	.89	.22		T.	.22		3.73			
Liberty.	do.	.50	.70	.20	.45	.10	.25				.35	.12						T.	.30				.15	.20	1.90			.10		5.32			
Little Falls.	Mohawk.	.74	.04	.25		.45					.50					.15	.32		2.40				.66	.18	1.30		.10						

TABLE 2.—Daily precipitation for September, 1912. District No. 1—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Pennsylvania.</b>																																	
Allentown	Lehigh.	1.42	10			.30			.91						1.03				.74	.09				.70	1.90	10	.05	.09				7.43	
Altoona.	Susquehanna.	1.40	.52									.03	0			.42		.62		.20				.87	.90	10	.44			.06	5.36		
Ansonia	do.	.45	.06	.44				.18				.06	.06			.70		.70		.40				.36	.95	.68			.08	.42	4.84		
Bethlehem.	Lehigh.		.41				.41		.58			.01				.97		.56	.20					12	1.00	1.28			.09	.03	5.96		
Browsers Lock.	Schuylkill.	1.06	1.43					.62		.23					.14					.20				*	*	3.37					5.99		
Catawissa.	Susquehanna.	T.	.12			.09	T.				.27				.80			2.35	.02					.47	1.47	15		.32		.17	7.29		
Center Hall.	do.	.25	.20	.26		.01	.01	.27							.01	.75		.12		.05	.63			.80	1.25	.43	.02		.42	4.80			
Coatesville.	Coast.	.39	.27					.03	.13						T.	.17		.05		.63				.24	2.79	.37		.05			5.12		
Doylestown.	Schuylkill.	.20	.83				.12			.08					.10			.10		.08				.15	3.12	.94					5.62		
Drifton.	Susquehanna.	.73	.07	.10		.35				.25					.90			.20	.15					.28	1.85	.82			.10	5.9			
Emporium.	do.	.44	.85				T.				.10				.63			.35						.80	.65	.25	.21		.67	4.95			
Ephrata.	do.	.71	.04						.47						.19			1.40	.18					.10	1.80	.14	T.	.05			5.08		
Forks of Neshaminy.	Delaware.	.57						.17							.12						.38			2.65							3.89		
George School.	do.	.17	.38				.06		.04									T.	.27					.03	1.37	.27	T.	T.	.01		2.72		
Gettysburg.	Potomac.		.92	.05											.17			.05	.27					.78	3.20	2.19	.04	.08		.05	7.80		
Girardville.	Susquehanna.	.99	.21			.65					.04				.70			.35	.04			T.		.30	1.75	.55	T.	.37		.24	6.19		
Gordon.	do.	.10	.66	.09		.02	.09	.18			.19					.96		.23	.15					.39	2.20	.96	.05	.39		.14	5.80		
Hamburg.	Schuylkill.	.97	.84												1.60			.26	.47						.89	1.02					6.05		
Hanover.	Susquehanna.	.01	.65		</																												

TABLE 2.—Daily precipitation for September, 1912. District No. 1—Continued.

Stations.	Watershed.	Day of month.																													Total.	
		1a	2a	3a	4a	5a	6a	7a	8a	9a	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>New Jersey—Contd.</i>																																
Trenton.....	Delaware.....	.27	.32		T.		.01			T.							.11		.08	.19			.03	1.02	.87							2.90
Tuckerton.....	Coast.....	.03	.80	.06													.98		T.	.10			T.	.41	1.00							3.38
Vineland.....	do.....	1.69	.02	.01									.02		T.		.28		.33				T.	1.25	1.61		.03					5.24
Woodbine.....	do.....	.08	.86	.02		.02											.23		.04	.50	.03			.90	2.35	.01	.02					5.06
<i>West Virginia.</i>																																
Bayard.....	Potomac.....	.45	.57	.15	T.								T.		T.	.75	.37		.55	.05			1.05	.40	.42	.74	.28		.20		5.98	
Burlington.....	do.....	T.	T.	.10				T.									.40						*	*	3.00		.70				4.20	
Harpers Ferry [1].....	do.....			.58					.15								.30				T.	.40		.95	2.20	4.60						9.18
Lost City.....	do.....	.20	.18	.05							.18					.43			.75				2.00	.45		.11			.14		4.49	
Martinsburg.....	do.....	.08	.77	.05										T.		.10			.55	.07			*	6.18		T.	.08		.05		7.93	
Moorefield.....	do.....	T.	T.										T.			.75	T.		.25	T.			1.75	.77	.11	.37		T.			4.00	
Upper Tract.....	do.....	.40		2.05											.22	T.			.28				.70	.55	T.	.30	T.				4.50	
<i>Maryland.</i>																																
Annapolis.....	Coast.....		.04	.14	T.				.02				.43				.59		.50	1.75	.09			.15	1.70	.98	.02	.04	T.	T.		6.45
Baltimore.....	do.....	.11	.26	T.				.72				T.				.24			.19	.40				.61	.97	.22	.01	.02	T.	T.		8.75
Cambridge.....	do.....		.03									.49							.35	.86	*			1.17	3.25		.03					6.18
Cheltenham.....	do.....			.43					.54				.75				.07		.50	1.75				.27	.20	.22	.08					6.81
Chestertown.....	do.....		.08	.10			.40		.62				.15				.63		.20	.92	.03			.10	.95	.97	T.	.03				5.20
Chesville.....	Potomac.....		.54	.02				.52				T.				.15			.33	.08			1.09	1.96			T.	.07		.05		4.81
Clear Spring.....	do.....	.01	.05	.41	.02				T.				.08				.16			.40				.49	3.20	.87		.18		.08		5.95
Coleman.....	do.....						.60					.07				.28			.17	.89				.10	2.15	.62						4.88
College Park.....	do.....			.31				.16								T.			.20	.87				.44	.95	.35	.03	.20		.02		4.53
Cumberland.....	do.....	.07	.23	1.05	.01			.08					.02		T.	.04	.24			.30				1.71	1.43	.05	.22	.24		.16		5.85
Darlington.....	Coast.....	T.														.64			T.	.89				.25	3.01	.78		.09		T.		5.66
Denton.....	do.....	.33						T.											.19	.75			*	.04	*.85	.80		.05				3.01
Easton.....	do.....	.10	.03								.26								.37	.73						.24	.08					4.00
Emmitsburg.....	Potomac.....																1.75							3.20	2.40	2.50						9.85
Fallston.....	Coast.....	T.	.04	.11		.05	.72							T.	T.	.75		.05	.82					.29	.86	1.62		.04		.07		7.42
Frederick.....	Potomac.....		.44	.02	T.			.05							T.	.22		.33	.26					1.03	3.76	.50	.03	.11		.04		6.79
Frostburg.....	do.....	.10	T.	.95	T.			.08	.01						.49	.35			.42					1.46	2.06	.12	.25	.35				6.64
Great Falls.....	do.....			.81					.39			.01					.58					.60	.35									5.81
Green Sp'g Furnace.....	do.....	.05	.44	.04				T.									.25			.17	.07			1.20	2.24	.13		.15		.12		4.86
Keedysville.....	do.....		.52	.05				.06								.02	.37			.24	.12			1.34	2.54	.25	T.	.05		.06		5.62
Lake Montebello.....	Coast.....		.45	T.	.01			.82								.17				.24	.54	T.		.51	3.31	.43	.02	.03		.01		6.54
Laurel.....	do.....		.43	T.	T.				.10							1.27				.15	.72				.42	3.31	.38	.40	.04			6.24
Leonardtown.....	do.....			.08				.12						.07		.05		1.32	1.26						.24	3.11	.09	.05	.03		T.	6.62
Monrovia.....	Potomac.....		.30					1.49									.63		.02	.59				.80	2.30	.24	.03	.14		T.		6.54
Pocomoke City.....	Coast.....	1.05						.40	.04								.11		*	.39				1.01	.50	.37	.01	T.				3.97
Princess Anne.....	do.....			T.				.03									.11			.34	.16			.08	1.25	.10		T.				2.07
Rockville.....	Potomac.....			.53					2.00								1.42			.08				.61	2.17	.14	.02	.08	.02			7.88
Salisbury.....	Coast.....						.15							T.	T.				.48	.05				.02	.98	.85	.01	.03				3.55
State Sanatorium.....	Potomac.....		.75	.10													.95							2.25	4.10	.75	.01					8.91
Sudlersville.....	Coast.....	.02	.03	.04				.02					.66		T.		.19		.16	1.44				.05	1.70	2.10		.02		T.		6.43
Takoma Park.....	do.....		.58						.85								.40							.10	1.05	.95	.06	.05	.13	.03	.02	5.09
Towson.....	do.....																															7.24
Van Bibber.....	do.....		.16				.11	T.											.24					.99	5.03	.71						4.41
Westernport.....	Potomac.....						.48								.01	.42			.48					1.55	.95	.12	.40					5.63
Westminster.....	Coast.....	1.43	T.														.28		.08	.40				.55	2.30	.32	.04	.20		.03		5.98
Woodstock.....	do.....		.18	.46	.01				.21								.17		.04	.61				.47	3.24	.48	.04	.06		.01		
<i>Delaware.</i>																																
Delaware City.....	Coast.....		.33	T.					T.				T.				.61		T.	.62	T.			T.	1.70	1.40	T.	T.		T.		4.66
Dover.....	do.....		T.					.11	.65			T.						.34			.35	.55		.07	1.70	1.00		T.				4.77
Milford.....	do.....	.03			.01		.11						.06		T.			.07		.15	.32	.02			.85	1.25	.06	.02				2.95
Millsboro.....	do.....		.05		.01	.01	.51						.09							.54	.34			.20	1.10	.20	.0	.08				3.16
Seaford.....	do.....	.10	.15	T.	T.			.92									.01			.51	.10			.23	.53	2.45	.03	.03				5.06
Wilmington.....	do.....	.79	.83					.04				.06					1.00							.01	2.13	1.72		.05				7.28
<i>District of Columbia.</i>																																
Washington.....	Coast.....	.02	.27		.02			1.75				.49					.07			.41	.38			.85	1.38	.05	.01	.12		.04		5.86
<i>Virginia.</i>																																
Culpeper.....	Rappahannock.....	.21			.16		.57																									

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 1, North Atlantic States.

Date.	Maine.												Concord, N. H.		Massachusetts.								Provi- dence, R. I.		Connecticut.			
	Eastport.		Greenville.		Orono.		Portland.		Presque Isle.		Rumford Falls.				Amherst.		Boston.		Middle- boro.		Nantucket.				Cream Hill.		Hartford.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	56	48	63	36	67	43	66	47	68	28	65	46	64	39	58	44	68	53	68	38	65	52	66	47	54	47	63	53
2....	63	48	59	45	64	50	57	53	68	28	56	51	59	51	60	53	62	54	66	52	64	53	64	54	59	49	62	54
3....	58	54	57	50	63	53	64	55	60	50	65	54	68	56	68	56	67	59	73	57	72	59	72	58	68	52	71	57
4....	72	55	72	55	74	56	70	59	74	59	76	56	80	60	84	63	74	62	79	52	76	59	77	60	80	55	82	64
5....	66	56	70	49	76	48	73	54	74	54	74	52	78	56	82	62	83	65	80	54	69	62	79	65	77	56	81	62
6....	71	54	72	53	75	51	78	61	70	54	78	54	82	60	84	62	75	68	75	65	73	60	78	66	79	63	82	70
7....	82	52	60	40	75	40	66	55	60	29	64	49	69	57	82	60	78	63	77	51	73	59	73	62	78	64	81	66
8....	70	56	72	52	79	57	84	59	65	54	76	56	82	58	84	55	85	66	83	59	83	65	82	63	79	60	83	62
9....	67	53	66	49	79	47	74	58	74	53	71	49	76	52	84	54	80	62	80	50	75	59	80	61	81	59	84	64
10....	59	50	67	45	78	46	66	53	70	40	70	48	70	46	82	49	78	59	78	45	72	58	77	56	81	56	85	56
11....	74	57	66	55	71	56	75	54	72	56	71	49	79	53	86	56	90	60	89	65	76	65	88	59	84	66	87	61
12....	65	48	60	42	72	42	68	49	62	35	64	48	69	48	72	49	68	53	68	47	65	53	68	51	68	40	69	51
13....	61	50	67	48	70	40	67	50	68	35	70	47	75	44	78	43	70	56	74	43	72	54	72	52	74	48	75	50
14....	66	52	68	42	71	45	66	51	70	45	69	48	72	48	70	54	76	61	74	51	72	59	74	58	66	50	72	58
15....	78	53	74	55	78	53	77	62	72	41	76	57	83	63	83	67	84	69	82	67	74	60	82	68	79	60	81	68
16....	60	48	59	42	80	46	65	51	70	40	64	48	69	48	72	48	73	54	72	49	68	51	71	51	71	52	73	54
17....	67	45	64	40	73	39	71	44	60	41	68	42	72	38	76	39	74	50	72	34	67	51	72	48	70	44	73	45
18....	62	52	56	40	72	44	67	54	70	52	66	49	73	48	75	56	76	60	75	52	72	60	74	59	68	55	75	60
19....	69	56	64	53	70	58	70	60	70	48	70	61	74	63	80	65	84	66	81	65	75	66	81	68	69	57	78	67
20....	56	47	59	41	70	46	60	46	55	35	62	46	65	48	74	52	70	51	72	54	73	57	72	52	74	54	74	54
21....	51	46	52	40	66	43	51	43	55	35	52	42	56	46	58	50	56	47	58	49	60	52	57	48	63	42	58	51
22....	62	42	62	31	64	40	59	41	64	27	60	36	62	44	56	44	60	48	62	37	60	48	60	44	58	44	66	46
23....	60	46	63	32	65	34	60	43	62	30	61	40	63	40	62	52	62	49	66	31	62	48	63	42	57	48	64	54
24....	60	50	66	47	66	43	59	51	64	42	65	52	64	50	64	53	62	56	68	44	66	55	67	52	59	47	65	53
25....	60	50	70	46	77	44	60	46	74	47	66	44	66	43	72	48	63	53	68	51	65	55	70	50	63	50	68	52
26....	69	50	70	35	70	36	65	41	68	37	68	37	71	36	74	39	68	47	69	39	65	51	72	48	69	47	73	44
27....	64	49	58	41	73	38	65	47	60	32	58	43	60	45	64	47	66	53	65	38	68	51	64	50	62	42	60	51
28....	59	45	52	37	72	37	62	43	57	37	57	37	61	37	66	36	67	48	62	33	62	50	65	45	63	38	65	42
29....	49	41	42	32	67	31	54	46	46	40	46	40	51	40	50	37	63	48	64	30	63	49	61	41	55	46	52	37
30....	46	36	40	33	61	30	53	39	54	27	46	38	55	37	60	35	59	40	58	36	57	44	57	37	53	30	58	37
Mns..	62.7	49.6	62.3	43.5	71.3	44.5	65.7	50.5	65.2	40.7	65.1	47.3	69.1	48.5	72.0	50.9	71.4	56.0	71.9	47.9	68.8	55.7	71.3	53.8	68.7	50.7	72.0	54.8

Date.	New York.												Pennsylvania.										Atlantic City, N. J.					
	New Haven, Conn.		Addison.		Albany.		Bingham- ton.		Indian Lake.		Little Falls.		New York.		Everett.		Harris- burg.		Philadel- phia.		Scranton.		State College.		Wellsboro.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	65	58	86	57	64	54	75	55	61	34	67	51	66	57	79	61	70	63	74	57	83	76	81	54	71	68	71	68
2....	65	57	80	62	65	58	73	62	60	51	60	55	69	61	83	65	70	64	74	63	80	68	84	58	70	65	70	65
3....	72	58	88	63	68	59	78	62	70	53	69	56	68	61	77	64	74	63	74	62	81	64	83	55	71	65	71	65
4....	75	64	86	62	78	64	79	62	82	58	80	58	79	65	79	66	78	65	80	64	74	62	87	58	71	66	71	66
5....	81	61	85	59	78	64	80	59	77	52	80	59	80	63	85	68	84	66	82	62	85	63	87	62	76	69	76	69
6....	85	69	87	64	80	67	77	64	80	63	78	65	85	70	90	71	89	73	82	66	86	67	89	62	91	71	71	71
7....	80	67	91	66	82	64	87	60	81	55	82	60	82	67	88	71	90	74	87	64	87	68	81	63	79	70	70	70
8....	84	64	87	51	82	60	79	52	78	51	76	55	84	66	84	67	85	69	82	59	83	56	90	58	84	7	7	7
9....	84	60	89	54	80	60	81	55	77	47	80	58	85	68	88	63	91	68	83	57	85	60	84	48	90	65	90	65
10....	79	58	93	59	80	54	87	55	80	38	81	52	88	68	91	66	91	73	89	58	86	60	90	56	83	68	83	68
11....	86	62	81	60	83	58	79	55	79	55	75	57	88	66	90	68	90	70	85	59	84	58	82	58	7	71	71	71
12....	72	52	76	47	70	50	68	46	65	32	66	41	70	55	73	59	74	60	68	50	77	54	80	50	71	61	71	61
13....	75	52	80	46	75	54	74	46	70	40	75	50	73	59	76	53	79	59	77	48	76	54	77	42	73	56	73	56
14....	72	59	83	56	72	63	77	62	67	45	66	41	73	64	82	66	78	64	75	62	75	55	80	56	74	68	74	68
15....	77	68	83	63	81	68	82	67	73	56	78	53	70	68	85	71	84	70	85	69	85	61	83	58	77	71	77	71
16....	73	56	72	59	73	52	70	49	70	48	75	55	76	62	76	63	79	63	71	53	75	61	72	58	77	67	77	67
17....	72	49	76	46	70	57	72	43	72	30	70	39	73	57	78	57	78	58	73	44	72	50	75	45	72	64	74	68
18....	73	64	80	54	71	57	76	55	65	40	75	52	72	64	80	66	79	65	77	58	76	56	78	54	74	68	74	68
19....	77	65	73	59	72	65	72	57	68	50	70	60	74	64	72	61	72	64	73	61	78	56	74	50	78	64	74	64
20....	75</																											

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 1—Continued.

Date.	New Jersey.								Martins- burg, W. Va. §§	Maryland.								Mills- boro, Del.	Washing- ton, D. C.	Virginia.								
	Bridgeton.		Imlays- town.		Phillips- burg.		Sussex.			Baltimore.		Darling- ton.		Freder- ick.		Western- port.				Freder- icksburg.		Staun- ton. §§		Wood- stock.				
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			Max.	Min.	Max.	Min.	Max.	Min.			
1....	77	63	76	59	69	57	64	56	92	56	81	64	78	59	90	61	94	66	80	65	91	64	91	66	95	71	96	63
2....	75	68	70	63	71	62	65	59	86	67	85	66	.....	.....	87	69	93	69	86	68	87	67	90	72	97	71	96	70
3....	78	63	70	62	73	61	67	59	75	68	76	66	.....	.....	77	66	94	67	78	65	79	66	83	68	95	66	91	67
4....	84	66	83	62	83	65	82	63	80	66	77	69	.....	.....	79	65	82	63	76	66	76	68	76	69	80	66	81	69
5....	89	66	86	61	84	64	83	60	89	67	85	69	.....	.....	88	69	95	62	101	68	87	69	87	70	86	67	93	68
6....	95	70	80	69	88	68	84	65	92	67	94	74	.....	.....	92	70	86	64	102	70	92	71	93	69	93	65	96	65
7....	93	68	91	67	88	65	85	61	92	67	92	69	90	67	93	69	93	60	91	69	89	66	87	67	90	69	90	70
8....	86	66	87	62	86	60	82	60	83	65	86	69	84	65	85	64	95	58	93	64	84	63	84	64	88	60	89	62
9....	92	58	91	58	89	58	86	55	89	55	90	66	89	57	90	55	96	54	95	57	92	59	87	59	92	58	94	54
10....	95	65	93	59	90	60	88	55	93	58	93	69	90	62	92	61	102	59	95	60	92	63	89	59	92	58	97	59
11....	95	68	93	68	91	64	86	66	93	60	93	70	90	63	93	62	97	59	93	60	94	68	90	66	94	60	98	59
12....	82	58	78	53	75	54	73	47	90	63	77	63	83	58	84	62	88	56	79	51	76	59	80	66	80	66	84	61
13....	81	49	84	46	80	49	77	46	78	65	77	57	77	48	79	51	77	52	80	45	78	54	78	55	72	59	80	58
14....	82	58	80	57	74	60	70	57	88	54	83	69	79	63	89	63	90	58	80	58	88	68	85	64	86	62	92	69
15....	90	69	88	65	84	67	82	67	90	57	87	72	82	69	89	70	90	65	91	68	89	73	89	71	87	64	92	65
16....	82	69	82	69	77	62	78	63	80	68	80	67	79	69	82	70	85	68	89	65	80	67	83	71	86	66	83	70
17....	82	55	80	52	76	50	75	47	82	58	78	61	77	54	81	57	85	54	80	58	82	64	81	59	84	57	89	55
18....	79	62	80	59	73	60	70	57	85	58	80	69	78	64	83	64	85	60	85	62	80	68	77	66	87	63	91	63
19....	75	67	79	67	70	64	71	63	75	63	70	65	73	63	72	65	80	61	89	65	69	63	73	66	75	63	75	60
20....	74	58	78	52	75	52	72	50	77	50	76	59	75	52	77	50	84	47	82	58	76	56	75	55	78	47	82	48
21....	79	55	75	48	73	48	70	45	78	50	75	59	73	53	78	50	87	47	74	52	78	54	79	53	80	49	81	49
22....	71	51	68	47	63	54	60	50	73	52	70	60	67	54	71	59	81	55	70	56	73	62	74	62	74	53	79	61
23....	70	51	68	48	64	54	62	52	64	60	66	63	65	55	67	60	70	60	72	54	66	62	69	62	62	59	69	61
24....	67	62	63	60	62	58	60	55	66	60	67	62	64	60	66	62	67	59	70	60	71	64	74	61	71	60	69	62
25....	66	60	68	57	61	53	66	51	68	61	67	61	65	58	65	62	75	62	69	62	68	61	71	64	79	62	76	62
26....	73	56	77	54	75	49	74	45	67	60	68	60	66	57	68	59	68	59	70	60	67	60	69	61	71	60	72	61
27....	63	59	62	55	68	50	66	51	67	54	66	55	65	54	70	55	77	52	66	57	66	55	68	54	60	56	70	53
28....	70	45	69	39	68	41	68	39	66	42	66	50	65	45	68	43	71	41	69	49	66	48	65	49	66	41	68	42
29....	69	44	68	40	55	41	55	38	70	45	68	52	67	43	70	45	70	47	76	45	72	50	73	47	74	47	76	48
30....	62	38	63	35	61	34	59	31	61	41	62	46	63	37	63	38	72	37	65	42	61	42	67	44	62	40	67	40
Mns..	79.3	59.7	77.7	56.1	74.9	56.1	72.7	53.8	79.6	58.6	77.8	63.4	75.4*	57.2*	79.6	59.9	84.4	57.4	81.5	59.3	79.0	61.8	79.6	62.0	81.2	59.5	84.1	59.8

\* a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT No. 2, SOUTH ATLANTIC AND EAST GULF STATES.

CHARLES F. VON HERRMANN, District Editor.

## GENERAL SUMMARY.

From a meteorological point of view September, 1912, presents several features of special interest, among them the rather unusual combination of great warmth with excessive precipitation, and the frequency of slight disturbances or incipient tropical storms in the Gulf of Mexico. One of these lingered for several days in the east Gulf and produced a phenomenal downpour of rain on the west coast of Florida, and another developed into a moderately severe storm that entered the coast line west of Mobile, Ala., and thence passed rapidly northward.

The month began with a period of 3 or 4 days of intense heat during which the highest temperatures of the summer occurred at a large number of places, and September records for high temperatures were broken at many stations. The temperature remained much above normal during almost the whole of the first two decades; a brief period of cooler weather occurred about the 20th, and a longer period with temperatures moderately below normal prevailed from about the 27th to 30th. No frosts were reported, although temperatures slightly below freezing occurred at one or two stations located in northwestern Virginia at high altitudes.

The rainfall from the 18th to 19th and 23d to 24th marked the termination of the summer drought in Virginia and North Carolina. In the southern portion of the district, excluding the Mississippi area, especially in Florida, southern Georgia, and southeastern Alabama, the rainfall was very heavy. The period of 6 days from the 7th to 12th was noteworthy for excessive rains on the west coast of Florida, Tampa receiving 13.71 inches, Pinellas Park 15.31, and Cedar Keys 23.15 inches. In fact, the precipitation during September, 1912, was copious throughout nearly the entire district, no less than 125 stations having received over 6 inches during the month, and 2 stations in Florida received over 25 inches. A considerable amount of damage to property was caused by these heavy rains.

An unusual number of slight barometric depressions were evident during the month in the central and eastern portions of the Gulf, occurring about the 6th to 8th, 11th to 14th, 21st to 23d, and 28th to 29th. The first disturbance moved slowly northward near the west coast of Florida to southern Georgia, with the lowest atmospheric pressure, 29.77 inches on the 8th, at Thomasville, Ga.; the second on the 13th developed sufficient energy to enter the country a few miles west of Mobile, whence it passed to the vicinity of Meridian, Miss., and thence to Louisville, Ky., on the 15th, giving the lowest atmospheric pressure for the district 29.61 inches at Meridian, Miss., on the 14th. The highest atmospheric pressure for the month occurred quite generally during the last days accompanying the first cool spell of autumn. The maximum was 30.38 inches at Richmond, Va.

## TEMPERATURE.

The excess in temperature was general throughout the district. The greatest departures in a few cases exceed 5° or 6° at stations in central North Carolina and northern and western South Carolina, diminishing southward to less than 1° along the Gulf coast. The monthly mean for the entire district was 76.9° and the departure +2.5°. The State averages varied from 72° for the Virginia area to 80° for Florida. The monthly means at individual stations ranged between 75° and 80° in the Gulf States and between 65° and 75° in the northern portions of the district. The lowest monthly mean was 60° at Hot Springs, Va., and the highest 83° at Key West and Observation Island, Fla.

The intensity of the heat wave at the beginning of the month was almost unprecedented, but fortunately it was of comparatively short duration. The following brief extracts from the reports by section directors will perhaps on this occasion be of greater interest than a general summary:

*Virginia:* On the opening days of the month temperatures ranged from 90° to 100°, the hot wave continuing for several days. A general and decided change to cooler weather occurred about the 12th, and on the 28th to 30th temperatures below 45°, and in a few cases below freezing were registered.

*North Carolina:* The mean for the State, 74.9°, is the same as for September, 1900, and higher than any other mean except 75.1° in September, 1911. It was exceptionally hot the first 3 days, breaking records for high temperatures in September at 7 central stations with the highest temperatures for the year at many points.

*South Carolina:* September, in 1906 and 1911, were slightly warmer than the current month. An unusually high maximum temperature of 109° was registered on the 1st.

*Georgia:* With the single exception of September, 1911, this was the warmest September on record. At 2 northern, 10 central, and 13 southern stations maximum temperatures of 100° or above were reported during the first 4 days of the month, while Americus, Dublin, Eastman, Marshallville, and Waycross recorded 100° or above on 4 consecutive days. During this period the highest temperatures for the summer occurred at 51 stations. New records for high temperatures were made at 17 stations and the previous highest record equalled at 8 others, the most notable instances being Augusta and Savannah, stations having long records.

*Florida:* The month began with temperatures 4° to 9° above normal in northern and central portions, but the hot wave did not reach southern counties in any pronounced degree.

The highest temperatures for the month exceed 100° in every State in the district, with the maximum 109° at Saluda, S. C., on the 1st. On the 20th and during the closing days of the month the lowest temperatures generally ranged from 42° to 48°, not falling below 60°, however, in Florida, and reaching freezing in Virginia with the minimum for the district 26° on the 30th at Hot Springs.

## PRECIPITATION.

As a rule over most of the district, except Florida, the rainfall during September diminishes rapidly from the summer maximum, but in Florida the month is the wettest of the year. During the current month the rain-

fall was both much more frequent and heavier than usual except in the Mississippi area. The largest amounts were received in western Florida, centering about 2 stations, Cedar Keys and Pinellas Park, just north and south of Tampa, Fla., both places having a total of over 25 inches. Amounts exceeding 10 inches also occurred in southeastern portions of South Carolina, Georgia, and Alabama. The smallest amounts occurred in the extreme western portion of the Mississippi area, where they were under 1 inch. The State average was below normal for Mississippi, while in other portions of the district the excesses ranged from 1.10 inches for North Carolina to 2.88 inches for Florida. The average rainfall for the entire district was 5.61 inches and the departure +1.47. The greatest amount was 28.14 inches at Cedar Keys, Fla., and the least 0.48 inch at Brookhaven, Miss. However, the rainfall over the greater portion of the district was fairly well distributed, for excepting four places in Mississippi in close proximity no other stations received less than 2 inches.

In the northern portion of the district only scattering showers were received until the 18th-19th or 22d-23d when the rainfall was general, breaking the long summer drought in North Carolina and Virginia. As typical of conditions in that section the following statement, referring particularly to Richmond, Va., is pertinent:

The drought at Richmond set in on May 17 and lasted 124 days. Considering only months wholly included in the period, i. e., June, July, and August, the summer of 1912 is found to be the driest during the past 40 years, or the entire period of the record. During the summer just closed the total rainfall was 5.24 inches, or 7.11 inches less than the normal and 2 inches less than was received during the summer of 1883, which has heretofore held the record for dry summers.

The following table, giving all the monthly rainfalls of over 25 inches on record in district No. 2, is of interest in this connection:

Station.	Amount.	Date.	Station.	Amount.	Date.
	<i>Inches.</i>			<i>Inches.</i>	
Bradentown, Fla....	25.62	June, 1912	Miami, Fla.....	27.86	Oct. 1898
Cedar Keys, Fla....	25.57	July, 1909	Do.....	25.10	Sept., 1878
Do.....	28.14	Sept., 1912	Pinopolis, S. C.....	28.80	Aug., 1891
Fleming, Ga.....	28.60	Aug., 1898	Pinellas Park, Fla.	26.83	June, 1912
Fort Pierce, Fla....	29.35	June, 1853	Do.....	26.00	Sept., 1912
Fort Myers, Fla....	25.58	....do.....	Rockwell, Fla.....	26.00	July, 1909
Hypoluxo, Fla.....	25.19	June, 1912	Rock House, N. C.	26.43	Aug., 1901
Mobile, Ala.....	26.67	June, 1900	St. Andrew, Fla....	31.26	Aug., 1898

In the southern portions of the district excepting the first few days of the month the rainfall was remarkably frequent, the heaviest and most general rains occurring about the 7th to 12th in Florida, 13th to 14th in Mississippi and Alabama, and from the 22d or 23d to the 24th in the States from Georgia northward. Reference has already been made to the remarkable downpour on the west coast of Florida from the 7th to the 12th. The successive amounts at Cedar Keys were as follows: 7th, 0.87 inch; 8th, 1.95; 9th, 8.95; 10th, 2.33; 11th, 3.20; and 12th, 5.85, giving a total of 23.15 inches in 6 days. The rainfall at Tampa was also extremely large, the total for the month being 18.93 inches, the greater ever recorded for September. The total at Tampa from 7 p. m., Saturday, September 7, to 7 p. m., Tuesday, September 10, was 13.19 inches. Considerable damage resulted therefrom in Tampa and vicinity which may be summarized as follows:

Hundreds of houses in Tampa were surrounded by water and more or less damaged. Many acres of flat lands were entirely submerged. Streets were washed out in many places, street car services, suburban and city, badly interrupted, and telegraph and telephone companies suffered considerable loss.

Heavy rains, exceeding 4 inches in 24 hours, occurred at some point or other in all States in the district except Mississippi. The maximum amount was 9 inches on the 14th at Newbern, Hale County, Ala., closely followed by 8.95 inches at Cedar Keys on the 9th.

#### MISCELLANEOUS PHENOMENA.

The prevailing winds for the month were from the east in South Carolina, Georgia, and Florida and from the northeast in all other sections. The average hourly velocity exceeded 10 miles only at Cape Henry, Va., Hatteras, N. C., and Pensacola, Fla. The highest wind velocities occurred in connection with the tropical storm described elsewhere, Pensacola reporting 59 miles from the southeast on the 13th and 74 miles from the east on the 14th, and Mobile 52 miles from the southeast on the 14th.

The average number of clear days for the district was 12, ranging from 9 in Florida to 16 in Mississippi and Virginia, of partly cloudy days 8, cloudy days 10, and days with appreciable rainfall 11.

A number of exceptionally brilliant meteors were seen during the month and the following account of one seen at Ridgeway, S. C., on September 7, 1912, was prepared by Mr. G. P. Edmunds, the facts being verified by other observers:

Time of appearance: 8.45 p. m.  
Place first seen: A little south of the zenith.  
Color: A dazzling bluish white.  
Brilliance: Brighter than the full moon.  
Direction of course: Northwesternly.  
Length of trail: Nearly 45°.

Remarks: After pursuing a path of nearly 45° and being about the same distance above the northwestern horizon the meteor suddenly exploded, breaking into three distinct fragments, and about two minutes afterwards a report resembling a cannon shot was heard. So brilliant was the light of the meteor that persons could be discerned at nearly the distance possible in broad daylight. While the sky was partly cloudy in the south and east yet in the direct path of the meteor it was absolutely clear. The meteor seemed furthermore to have an appreciable disk, possibly  $\frac{1}{16}$ ". Reports on this phenomenon were made by observers in Richland, Newberry, and Fairfield where it was plainly visible. It is the opinion of the observer that at least one of the fragments reached the earth.

An unusually large and brilliant meteor was observed at Raleigh, N. C., at 10.35 p. m., on September 11. When first seen it looked like a ball from a Roman candle, having a red center surrounded by a bluish light fringed with green. It grew rapidly larger until within apparently 5° of the horizon when it seemed to scatter and go out. At this point it appeared to be at least as large as the full moon, and it illuminated objects quite distinctly. No sound of an explosion was heard.

#### DAMAGE BY STORMS.

Although the number of local thunderstorms during the month was not large, a few were destructive in Georgia and Florida. On the night of September 4, at 7 p. m., lightning struck the barn at the Georgia Experiment Station, near Griffin, Ga., starting a fire that destroyed all the buildings, except the residences; several head of cattle perished in the flames.

A tornado passed over Garcon Point, in Pensacola Bay, at 2 p. m., on September 5, with a roaring noise, doing great damage to the forests in the vicinity.

#### RIVER CONDITIONS.

The condition of the rivers during September present no features of special importance, as the heaviest rains generally occurred over the lower portions of the basins

and had comparatively little effect on the stages. A very moderate freshet occurred in the James River on the 24th to 26th. The rivers of North Carolina remained low during the month, but the Roanoke at Weldon rose rapidly from 11.2 feet on the 24th to 26.8 feet on the 26th, for which an advisory warning was sent. Moderaterises occurred in the Lynch and Pedee Rivers, in South Carolina, toward the close of the month, and the Santee was slightly above flood stages at Ferguson and Rimini on the 30th without any damage. The lowest stages generally occurred early in the month in the rivers of Georgia, Alabama, and Mississippi, and the highest during the last decade, flood stages not being approached at any station.

#### THE TROPICAL STORM OF SEPTEMBER 13-14, 1912.

(By ALBERT ASHENBERGER, Local Forecaster, Mobile, Ala.)

The storm that passed inland from the Gulf on the night of September 13-14, with its center probably not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of Mobile. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but during the east and southeast winds rose rapidly, and reached the level of the top of the lowest wharves at about 4.30 a. m.

The hourly wind velocity on September 13 ranged from 11 to 16 miles, and the wind veered from north to northeast. An increase in wind velocity was not perceptible till after 1.30 a. m. of September 14. A maximum rate of 32 miles an hour was attained at 2.50 a. m., and the highest velocity, 52 miles an hour, at 3.50 a. m. No high winds occurred after 6 a. m. On September 14 east winds prevailed from 1.30 a. m. to 3.15 a. m., and were followed by southeast winds changing to south at 4.45 a. m. At Pascagoula, Miss., about 35 miles southwest of Mobile, the wind backed from northeast to southwest, and the highest wind was from the northwest. The wind did not reach dangerous velocities at Gulfport, Miss., or other storm warning stations farther west.

A total rainfall of 1.30 inches fell during the storm. Traces of rain occurred near midday and rain began again at 8.30 p. m., on the 13th. Heavy rain fell for about a half hour preceding the increase in the wind velocity.

The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m., on September 13, and a slight rise in pressure occurred about 11 p. m. A rapid fall began after midnight; the lowest atmospheric pressure, 29.37 inches, occurred at 3.30 a. m., the pressure remaining almost stationary for half an hour, and then rising steadily until 29.65 inches was reached at 8 a. m. on the 14th.

The loss of property in the city of Mobile from the high winds is estimated at \$8,000. A church, a very weak

structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at \$4,000. The larger vessels had been made fast with extra cables, and many of the smaller vessels had ascended the river to places of safety. The principal loss to shipping interests was a barge, valued at \$2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. During the storm a watchman on a barge fell overboard and was drowned.

Storm warnings had been displayed from 2 p. m. of September 12, and wide publicity had been given to the information. The Mobile Daily Item, of September 14, in its account of the storm stated:

Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

On September 15, the Mobile Register published a special telegram from Pascagoula, Miss., reporting the storm at that place, and which referred to the warnings as follows:

Because of the ample warnings given by the Government shipping was fully able to protect itself.

At Pensacola, Fla., the storm was more severe, and the damage to property considerably greater. High winds from the northeast set in at 9.45 a. m. on the 13th, shifting to east at 3 p. m., and to southeast at 8.14 p. m., attaining a maximum velocity of 59 miles an hour at 9.21 p. m. Immediately after midnight the wind increased in velocity, reaching 74 miles from the southeast at 2 a. m. on the 14th, when the anemometer was carried away. The wind remained high until about 5 p. m. The lowest atmospheric pressure was 29.65 inches on the 13th.

The damage at Pensacola is summarized by Mr. Reed, local forecaster at that station, as follows: The entire beach was strewn with timber and about 20 barges, fishing smacks, etc., went ashore. Private wharves along the bay shore from Fort Barancas to Baylen Street were generally carried away, together with numerous small houses on the wharves used either as bath houses or for fishermen's equipments. The wharves of many of the fishing companies were also damaged considerably. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift; one of them damaged the steamer *Edna C* and the steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. The British steamer *Coniston* went ashore about 75 miles east of Pensacola. A portion of the track of the Pensacola Electric Co., was undermined south of Bayou Grande, and on Main Street. The damage by winds in the city was slight. The tide during the night of the 13th-14th rose about 2 feet above normal high water, and the waves ran about 4 feet high. Total estimated damage at Pensacola and vicinity, \$25,000.

TABLE 1.—Climatological data for September, 1912. District No. 2, South Atlantic and east Gulf States.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.		
<b>Virginia.</b>																					
Arrovia.	Buckingham	380	8	71.4	+ 2.4	97	1	45	28†	35	5.66	+ 2.16	2.20	0	10	10	14	6	sw.	Rev. Plummer F. Jones.	
Ashland.	Hanover	221	21	72.2	+ 3.2	94	6	45	30	36	4.04	+ 0.65	2.03	0	6	23	0	7	s.	E. L. C. Scott.	
Buchanan.	Botetourt.	820	8	74.6	+ 4.7	100	1	48	30	37	6.89	+ 3.12	2.18	0	9	17	8	5	e.	D. D. Boose.	
Callaville.	Brunswick	250	18	73.5	+ 1.7	88	6	47	30	22	3.72	+ 0.38	1.45	0	6	17	4	10	w.	F. M. Gage.	
Cape Henry.	Princess Anne.	20	38	65.0	.....	92	3	33	30	47	2.80	- 1.28	1.81	0	7	16	4	10	ne.	U. S. Weather Bureau.	
Catawba.	Roanoke	1,700	1	71.4	.....	97	1	43	30	37	9.63	+ 5.30	3.45	0	7	12	11	7	se.	State Board of Health Sanitarium.	
Charlottesville.	Albermarle	800	23	71.4	.....	97	1	43	30	37	9.63	+ 5.30	3.45	0	7	12	11	7	se.	Leander McCormick Obs'y.	
Clarksville.	Mecklenburg	286	18	72.7	+ 4.0	94	1†	44	30	29	3.86	+ 0.99	1.42	0	5	13	7	10	ne.	J. A. Ligon.	
Columbia.	Fluvanna	246	14	72.7	+ 4.0	94	1†	44	30	29	5.40	+ 2.18	3.11	0	11	13	7	10	ne.	Chesapeake & Ohio Ry.	
Danville.	Pittsylvania	413	12	74.8	.....	94	6†	53	21†	32	6.85	+ 3.68	1.76	0	8	16	6	8	.....	C. G. Watkins.	
Diamond Springs.	Princess Anne.	25	2	74.8	.....	94	6†	53	21†	32	3.29	.....	2.16	0	8	16	6	8	.....	Virginia Truck Exp. Sta.	
Dry Bridge.	Chesterfield.	325	1	75.0	+ 3.4	92	2	34	30	20	3.65	.....	1.57	0	10	13	9	8	e.	Dr. E. W. Magruder.	
Hampton.	Elizabeth City.	5	29	59.7	- 2.9	86	3	26	30	43	3.66	+ 0.02	2.21	0	7	21	8	1	.....	Normal and Agr. Inst.	
Hot Springs.	Bath	2,195	20	73.6	.....	98	1	43	30	34	7.74	.....	3.20	0	5	20	3	7	.....	F. M. Terry.	
Ivor.	Southampton.	87	3	70.0	+ 3.5	96	2†	44	23†	41	4.09	+ 0.29	2.31	0	9	19	4	7	.....	N. & W. Ry. Exp. Farm.	
Lassiter.	Goochland	100	2	72.1	+ 3.7	96	3	47	30	33	6.98	+ 3.35	4.10	0	11	10	13	7	ne.	T. J. Davis.	
Lexington.	Rockbridge.	1,060	35	72.1	+ 3.7	96	3	47	30	33	6.98	+ 3.35	4.10	0	11	10	13	7	ne.	Virginia Military Institute.	
Lynchburg.	Campbell.	685	41	75.0	.....	93	15	48	30	26	3.01	.....	1.94	0	9	15	8	7	se.	U. S. Weather Bureau.	
Newport News.	Warwick	55	9	74.2	+ 2.5	91	6	50	30	20	2.61	- 1.45	1.76	0	9	13	8	9	s.	C. W. Ashby.	
Norfolk.	Norfolk.	91	42	74.2	+ 2.5	91	6	50	30	20	2.61	- 1.45	1.76	0	9	13	8	9	s.	U. S. Weather Bureau.	
Randolph.	Charlottesville.	334	8	73.0	+ 2.2	96	1	45	30	32	4.20	+ 0.77	1.77	0	9	10	8	12	ne.	W. J. Abbott.	
Richmond.	Henrico.	144	33	70.8	.....	96	1	46	30	33	4.91	.....	2.32	0	10	18	2	10	e.	U. S. Weather Bureau.	
Roanoke.	Roanoke.	907	2	71.4	+ 1.2	98	2	45	20†	39	9.94	+ 2.50	3.20	0	9	19	1	10	ne.	Reese F. Bell.	
Rocky Mount.	Franklin.	1,150	18	71.1	.....	97	1†	40	30	34	9.55	.....	3.10	0	12	17	4	9	se.	G. W. B. Hale.	
Ruckersville.	Greene.	625	1	74.6	+ 6.0	96	2	50	30	36	4.58	+ 1.30	3.32	0	6	13	7	10	se.	Dr. Jesse Ewell.	
Spottsville (near).	Surry	15	24	73.8	+ 5.1	98	1	50	30	33	2.18	+ 0.78	0.85	0	6	17	4	9	se.	B. W. Jones.	
Williamsburg.	James City.	70	21	73.8	+ 5.1	98	1	50	30	33	2.18	+ 0.78	0.85	0	6	17	4	9	se.	Eastern State Hospital.	
<b>North Carolina.</b>																					
Albermarle.	Stanly	700	.....	76.3	.....	99	1†	53	20	32	4.17	.....	1.38	0	11	19	4	7	ne.	M. J. Harris.	
Beaufort.	Currit.	10	11	78.9	+ 3.0	95	2	62	30	21	5.67	+ 1.80	1.99	0	15	13	7	10	e.	Lewis Radcliffe.	
Belhaven.	Beaufort.	4	3	77.8	.....	101	1	56	29	27	6.34	.....	4.00	0	6	20	7	3	s.	A. L. Bell.	
Brewers.	Wilkes	1,950	15	72.0	+ 2.8	98	3	45	20	38	9.37	+ 4.80	2.63	0	17	7	18	5	w.	W. L. Brewer.	
Caroleen.	Rutherford.	806	12	75.4	+ 3.4	98	1†	49	20	33	3.91	- 0.11	1.84	0	10	13	13	4	sw.	S. B. Tanner.	
Chapel Hill.	Harnett.	500	6	75.9	.....	101	2	54	30	37	3.59	.....	1.05	0	11	16	8	6	ne.	J. A. Smith.	
Chapel Hill.	Orange.	500	54	75.0	+ 3.5	96	7†	52	30	31	3.17	- 0.43	1.13	0	8	.....	.....	.....	.....	Prof. A. H. Patterson.	
Chimney Rock.	Mecklenburg	1,150	2	73.2	+ 4.3	96	2	55	30	25	3.50	+ 0.28	1.78	0	10	5	10	15	ne.	U. S. Weather Bureau.	
Durham (near).	Rutherford.	406	3	73.2	+ 4.3	96	2	55	30	25	3.50	+ 0.28	1.78	0	10	5	10	15	ne.	J. M. Flack.	
Durham (near).	Durham	406	3	73.2	+ 4.3	96	2	55	30	25	3.50	+ 0.28	1.78	0	10	5	10	15	ne.	J. C. Michie.	
Edgerton.	Northampton.	66	7	74.4	.....	98	1	50	30	28	4.40	.....	2.15	0	9	16	9	5	sw.	J. T. Elliott.	
Edenton.	Chowan.	30	18	75.6	+ 3.5	98	1	53	30	29	3.55	+ 0.50	1.00	0	7	7	12	11	ne.	E. R. Conger.	
Elizabeth City.	Fasquotank.	8	.....	75.6	.....	98	1	53	30	31	4.45	.....	2.00	0	4	15	13	2	ne.	W. J. Simmons.	
Elizabethtown.	Had.	60	.....	75.6	.....	98	1	53	30	31	4.45	.....	2.00	0	4	15	13	2	ne.	J. W. Hall, jr.	
Enfield (near).	Halifax.	99	1	77.4	+ 5.4	100	1†	58	30	26	4.54	+ 0.24	3.86	0	7	12	6	12	ne.	T. S. Imboden.	
Fayetteville.	Cumberland.	170	25	70.4	.....	92	2	45	20	33	7.63	.....	3.37	0	9	15	9	6	s.	Frank Glover.	
Globe (near).	Caldwell.	1,800	.....	73.8	+ 1.0	93	2	55	30	22	4.31	- 0.27	2.05	0	11	.....	.....	.....	.....	Julius L. Gragg.	
Goldboro.	Wayne.	102	.....	69.6	.....	93	1†	42	20	36	7.45	.....	2.84	0	10	0	21	9	sw.	Mrs. N. B. Taylor.	
Gorge (near).	Caldwell.	1,358	.....	69.6	.....	93	1†	42	20	36	7.45	.....	2.84	0	10	0	21	9	sw.	A. J. Bagley.	
Graham.	Alamance.	656	10	73.4	+ 2.4	96	2†	53	30	28	6.95	+ 3.98	3.91	0	13	.....	.....	.....	.....	Dr. W. R. Goley.	
Greensboro.	Guilford.	842	31	73.4	+ 2.4	96	2†	53	30	28	6.95	+ 3.98	3.91	0	13	.....	.....	.....	.....	A. H. Horry.	
Greenville.	Pitt.	75	19	77.4	+ 2.7	91	2	61	30	16	2.74	- 2.59	1.84	0	9	7	16	7	ne.	R. M. Hearne.	
Hatteras.	Vance.	11	38	74.4	+ 2.3	98	1†	55	28	26	4.05	+ 0.52	1.29	0	9	12	14	4	ne.	U. S. Weather Bureau.	
Henderson.	Cleveland.	508	19	75.6	.....	98	1	54	20	28	3.09	.....	1.60	0	11	15	8	7	ne.	Enoch Powell.	
Kings Mountain.	Lenoir.	952	.....	76.9	+ 3.7	99	1	58	30	26	4.60	+ 1.54	3.43	0	11	6	8	10	12	se.	G. T. King.
Kinston.	Lincoln.	46	14	73.3	.....	97	1†	47	20	39	4.05	.....	3.00	0	6	.....	.....	.....	.....	H. C. V. Peebles.	
Lincolnton.	Franklin.	994	7	75.6	+ 4.4	101	1	52	30	30	2.92	- 0.38	1.41	0	7	14	7	9	sw.	S. P. Houser.	
Louisburg.	Robeson.	375	21	77.6	+ 4.7	101	1	59	28†	29	5.99	+ 1.71	2.32	0	16	.....	.....	.....	.....	T. B. Wilder.	
Lumberton.	Dare.	102	29	74.9	.....	93	7	56	30	21	5.97	.....	4.34	0	6	16	6	8	sw.	B. M. Davis.	
Manteo.	McDowell.	12	7	71.5	+ 2.3	94	3	48	20	32	6.56	+ 1.08	2.14	0	16	12	12	6	w.	U. S. Weather Bureau.	
Marion.	Hyde.	1,425	20	75.4	.....	93	1	55	21	25	4.37	.....	2.30	0	11	.....	.....	.....	.....	Sergt. Thomas McGuire.	
Middleton.	Chatham.	145	18	75.3	+ 3.4	101	2	53	30	36	3.07	- 0.92	1.35	0	9	11	11	8	sw.	J. S. Mann.	
Moncure.	Union.	586	18	76.4	+ 5.7	101	2	51	20	35	6.02	+ 2.09	1.60	0	9	8	10	12	ne.	B. J. Utley.	
Monroe.	Nike.	1,135	25	72.6	+ 3.1	95	1	45	20	33	5.80	+ 1.65	2.30	0	14	17	6	7	ne.	T. A. Aschcraft.	
Morganton.	Burke.	1,048	24	72.4	+ 4.2	97	3	45	20	36	6.68	+ 2.91	3.80	0	10	16	10	4	ne.	J. B. P. Massey.	
Mount Airy.	Surry.	616	15	75.2	.....	102	1†	52	30	29	3.71	.....	1.49	0	7	.....	.....	.....	.....	Prof. A. H. Merritt.	
Mount Holly.	Gaston.	190	8	75.2	.....	102	1†	52	30	29	3.71	.....	1.49	0	7	.....	.....	.....	.....	J. W. Holland.	
Nashville.	Wake.	266	.....	74.6	+ 1.0	95	1	55	30	30	4.24	- 0.72	2.48	0	8	.....	.....	.....	.....	J. B. Boddie.	
Neuse.	Craven.	12	30	72.1	.....	94	3	52	30	24	6.50	.....	2.50	0	12	6	5	19	ne.	Gaston H. Mooneyham.	
Newbern.	Wilkes.	1,700	.....	72.1	.....	94	3	52	30	24	6.50	.....	2.50	0	5	.....	.....	.....	.....	J. B. Hill.	
North Wilkesboro (near).	Sampson.	121	.....	76.6	.....	102	1	58	28†	31	5.50	.....	2.10	0	10	10	15	5	s.	Dr. Charles A. Willis.	
Parkersburg.	Moore.	650	8	76.2	.....	98	2†	53	30	30	5.46	.....	1.78	0	13	7	19	4	se.	E. J. Conway.	
Pittsboro.	Chatham.	480	20	76.0	+ 5.4	101	2	51	30	33	4.40	+ 0.50	1.70	0	6	8	16	6	ne.	General office.	
Raleigh.	Wake.	390	41	75.4	+ 4.8	99	1	53	30	25	3.20	- 0.14	1.51	0	10	6	11				

TABLE 1.—Climatological data for September, 1912. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>South Carolina.</b>																				
Aiken	Aiken	565	27	78.0	+ 3.4	100	2†	61	20†	27	6.29	+ 2.30	1.20	0	8	12	10	8	s.	C. E. Carman.
Allendale	Barnwell	186	23	79.2	+ 3.3	102	2	61	20	27	4.35	+ 0.70	1.12	0	9	9	0	21	ne.	Richard Hiers.
Anderson	Anderson	764	10	77.3	+ 4.4	102	2	51	20	32	3.64	+ 0.02	1.23	0	11	12	1	17	e.	H. H. Russell.
Batesburg	Lexington	656	23	77.1	+ 3.3	96	2†	59	20†	31	5.33	+ 1.67	2.15	0	10	11	3	16	w.	E. J. Hite.
Beaufort	Beaufort	20	25	77.9d	+ 0.6	98	1	64	29†	24	10.31	+ 5.36	2.51	0	16	7	6	17	ne.	Miss Lillian H. Rice.
Blackville	Barnwell	296	22	78.8	+ 3.3	103	3	58	20	31	8.70	+ 4.66	2.10	0	19	11	2	17	ne.	Miss M. E. Lange.
Blairs	Fairfield	293	6								3.96		1.41	0	8	12	4	14	s.	John R. Ragsdale.
Bowman	Orangeburg	160	10	77.0	+ 2.0	101	1	58	21	29	5.88	+ 2.83	1.26	0	15	8	12	10	e.	B. O. Evans.
Broxton	Hampton										7.46		2.05	0	8	13	6	11	ne.	Thomas D. Williams.
Calhoun Falls	Abbeville	508	18								6.91	+ 2.84	2.27	0	8	6	13	11	ne.	L. M. Parker.
Camden	Kershaw	222	45	79.6		103	2†	56	28	32	8.26	+ 4.46	0.23	0	7	8	7	15	ne.	W. C. Brown.
Catawba	York	562	6								3.71		1.20	0	9	10	3	17	e.	James C. Faris.
Charleston	Charleston	48	41	79.2	+ 3.0	100	1	64	30	21	10.42	+ 4.96	4.27	0	14	6	7	17	e.	U. S. Weather Bureau.
Cheraw	Charleston	144	23	77.2	+ 4.0	100	1	59	29	24	5.06	+ 1.49	3.02	0	13	8	5	17	ne.	J. H. Powe.
Clemson College	Oconee	850	20	79.0	+ 6.6	93	2	52	20	33	6.20	+ 2.42	2.60	0	10	13	7	10	e.	Prof. John N. Hook.
Columbia	Richland	351	25	77.7	+ 4.0	99	1	58	30	26	5.98	+ 2.53	3.77	0	14	8	12	10	e.	U. S. Weather Bureau.
Conway	Horry	25	19	79.0b	+ 4.5	101	2†	61	30	30	6.11	+ 1.86	1.65	0	12	8	1	21	s.	Paul Quattlebaum.
Dillon	Dillon	100	7	78.4	+ 3.8	102	2†	60	30	30	4.14	+ 0.53	1.93	0	13					A. E. Rowell.
Edisto	Bamberg	127	24								6.26		1.51	0	12	11	7	12	ne.	Nathan Jenkins.
Effingham	Florence	106	19								3.48	+ 0.09	0.95	0	6	14	0	16	ne.	H. B. McCall.
Ferguson	Berkeley	51	3	79.8a	+ 6.3	102	1	60	23	30	7.68	+ 3.97	2.18	0	11	13	1	16	ne.	Dr. J. R. Des Portes.
Florence	Florence	136	23	77.3	+ 2.5	101	1	59	28†	27	4.57	+ 0.33	2.80	0	12	6	8	16	ne.	H. K. Gilbert.
Georgetown	Georgetown	12	18	79.0	+ 3.4	98	1†	59	29	24	5.83	+ 2.15	2.50	0	9	6	24	0	ne.	A. P. Hazard.
Greenville	Greenville	989	19	74.3	+ 4.0	100	1	47	20	38	4.30	+ 0.33	2.66	0	10	15	5	10	ne.	Spartan Goodlette.
Greenwood	Greenwood	671	23	76.5	+ 3.3	100	2†	60	30†	29	8.73	+ 4.96	3.24	0	6	11	0	19	w.	M. M. Calhoun.
Heath Springs	Lancaster	568	10	75.6		102	2	55	20	28	3.67		1.50	0	8	2	18	10	e.	Charles Bowers.
Kingstree	Williamsburg	64	23	78.0	+ 3.0	100	2†	60	28†	29	4.01	+ 0.27	1.40	0	11	9	7	14	se.	A. O. Matthews.
Liberty	Pickens	900	17	76.1	+ 3.4	99	1	56	21	31	5.86	+ 1.22	4.25	0	10	14	10	6	e.	John T. Boggs.
Little Mountain	Newberry	711	18	79.0	+ 3.9	102	1†	55	30	27	3.94	+ 0.04	1.65	0	7	21	2	7	se.	J. M. Sease, M. D.
Meriwether	Edgefield		2	76.6c		92		55	20	34	4.58		1.52	0	11					William S. Middleton.
Monetta	Aiken			77.2		101	2	56	20	27	5.77		1.77	0	15	10	11	9	e.	Joseph M. Johnson.
Newberry	Newberry	502	7	77.3	+ 3.4	102	2†	53	20	33	5.56	+ 1.46	1.65	0	15	2	16	12	e.	W. G. Peterson.
Pelzer	Anderson	873	6								3.52		1.80	0	7	11	2	17	e.	J. M. Ward.
Pinopolis	Berkeley	55	18								7.27	+ 2.79	1.19	0	12	6	10	14	ne.	Miss E. P. Ravenel.
St. George	Dorchester	109	23	77.8	+ 2.8	100	3	61	28	27	7.35	+ 3.27	1.95	0	13	18	0	12	ne.	G. F. Lewis.
St. Matthews	Calhoun	209	23	77.8	+ 3.3	100	2†	61	29	24	4.73	+ 1.24	0.93	0	15	9	0	21	w.	J. S. Wannamaker.
Saluda	Saluda	530	16	78.9		109	1	52	20	39	5.12		1.25	0	9	9	13	9	e.	Mrs. F. V. J. Maxwell.
Santus	Union	572	16	78.1	+ 5.3	108	1	53	20	37	6.66	+ 3.29	3.44	0	12	5	15	10	e.	E. W. Jeter.
Smiths Mills	Williamsburg	62	14								5.52	+ 1.08	2.41	0	13	10	1	19	w.	W. G. Walker.
Society Hill	Darlington	75	14	75.4	+ 2.3	95	1	45	30	31	8.13	+ 3.94	5.63	0	10	8	14	8	ne.	Maj. J. J. Lucas.
Spartanburg	Spartanburg	875	20	75.5	+ 3.2	101	3	51	20	34	2.94	+ 0.93	1.67	0	8	11	0	19	ne.	F. P. Robinson.
Summerville	Dorchester	75	14	77.8	+ 3.0	99	2†	63	28	26	11.90	+ 8.12	0.04	0	19	3	20	7	e.	Miss E. H. Gadsden.
Trenton	Edgefield	620	18	79.0	+ 3.8	104	1	59	30	29	3.99	+ 0.80	1.48	0	10	8	15	7	e.	C. A. Long.
Walterboro	Colleton	69	7	79.8b		105	2†	64	29†	32	3.89		3.35	0	20	12	9	9	se.	B. Levy.
Winnabow	Fairfield	545	21	75.9		99	1	58	30	26	6.10	+ 2.64	1.60	0	6	13	12	5	se.	J. W. Seigler.
Winthrop College	York	690	12	77.8	+ 5.1	100	2	56	20†	29	3.50	+ 0.50	1.40	0	6	3	24	3	sw.	E. R. Rivers.
Yemassee	Hampton	23	16	77.7	+ 2.2	101	3	64	29†	28	6.96	+ 2.88	1.67	0	21	11	1	18	e.	J. G. Hutson.
<b>Georgia.</b>																				
Abbeville	Wilcox	180	9									7.22	2.01	0	14	9	4	17	e.	W. H. Calhoun.
Adairsville	Bartow	772	20	75.8	+ 3.3	95	4†	52	20	28	5.80	+ 2.55	1.70	0	6	13	3	14	sw.	Mrs. R. C. Evans.
Albany	Dougherty	232	25	80.4	+ 2.6	100	4	63	23	28	5.24	+ 2.13	1.55	0	13	16	3	9	sw.	George C. Brosnan.
Allapaha	Berrien	293	23	78.6	+ 1.8	98	3†	66	30	28	6.96	+ 0.03	2.00	0	17	11	3	16	ne.	J. F. Rice.
Americus	Sumter	362	27	76.8	+ 0.3	102	2†	58	20	33	4.21	+ 0.97	0.80	0	12				e.	Mrs. Josephine Lamar.
Athens	Clarke	694	30	76.4	+ 4.4	99	1†	54	20	31	4.14	+ 0.63	2.66	0	9	13	3	14	e.	C. D. Cox.
Atlanta	Fulton	1,218	47	75.3	+ 3.2	93	2	58	30	21	3.52	+ 0.11	1.27	0	13	10	5	15	ne.	U. S. Weather Bureau.
Augusta	Richmond	180	66	78.2	+ 3.3	98	2	60	30	26	4.37	+ 0.90	1.38	0	16	8	10	12	ne.	Do.
Bainbridge	Decatur	119	20	79.1	+ 1.7	100	3†	68	19†	28	6.28	+ 2.37	2.00	0	15				ne.	Mrs. C. O. Wimberley.
Barnesville	Pike	875	3								4.20		1.95	0	7				ne.	C. H. Butler.
Butler	Taylor	650	11								7.21	+ 3.89	4.09	0	9				ne.	Mrs. M. F. Wallace.
Camak	Warren	613	20	76.6	+ 2.2	101	1†	57	20	29	6.11	+ 1.89	1.67	0	10				ne.	J. A. Chapman.
Canton	Cherokee	894	13								3.25	+ 0.91	1.40	0	6	10	7	13	e.	G. W. Evans.
Carlton	Madison	557	13								2.92	+ 0.65	1.40	0	8				ne.	M. C. Power.
Clayton	Rabun	2,100	18	71.3	+ 2.8	91	1†	48	20	29	9.12	+ 4.11	2.00	0	13	14	3	13	e.	A. J. Duncan.
Columbus	Muscogee	262	24	79.4	+ 2.4	99	1†	61	20	29	3.53	+ 0.25	0.83	0	15	10	4	16	ne.	A. J. Land.
Concord	Pike	850	20	75.6		96	3	57	20	28	5.96		1.95	0	11				ne.	C. T. Smith.
Covington	Newton	810	20								5.05	+ 2.37	2.80	0	7	4	13	13	e.	Mrs. S. E. Cruise.
Dahlonega	Lumpkin	1,519	20	72.8	+ 2.9	92	3	47	20	34	4.85	+ 0.35	2.53	0	14	7	18	5	se.	Prof. B. P. Gaillard.
Diamond	Gilmer	2,020	20	72.6c	+ 4.0	91	1†	46	20	35	3.60	+ 1.14	1.49	0	12	13	9	8	ne.	R. A. Kinzey.
Dublin	Laurens	452	18	79.1		102	1†	59	20	34	6.09	+ 3.28	1.44	0	16	11	9	10	nw.	Mrs. M. E. Martin.
Eastman	Dodge	361	20	79.4	+ 2.5	101	3	64	20	26	7.87	+ 4.36	1.84	0	19				e.	Mrs. H. T. Bohannon.
Eatonville	Putnam										4.25		1.50	0	12				ne.	Prof. W. C. Wright.
Elberton	Elbert	710	8	78.2	+ 2.6	99	1†	56	20	31	5.50	+ 2.33	1.70	0	9	19	4	7	e.	H. A. Roebuck.
Experiment	Spalding	946	12	76.8	+ 2.9	96	3	61	29	22	3.87	+ 1.05	1.89	0	10	12	10	8	ne.	Hon. M. V. Calvin.
Fort Gaines	Clay	166	24	77.4	+ 1.0	100	4	66	30	27	4.95	+ 1.86	0.90	0	11	10	3	17	se.	Miss Eva T. Graham.
Gainesville	Hall	1,254	33	73.4	+ 2.4	98	3	47												

TABLE 1.—Climatological data for September, 1912. District No. 2—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of many days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<b>Georgia—Continued.</b>																			
Norcross	Gwinnett	1,078	2	76.2	+ 3.7	98	1	51	20	33	2.64	- 0.37	1.44	0	10	13	5	12	W. O. Medlock.
Point Peter	Oglethorpe	600	23	79.2	+ 2.7	100	2	65	30	31	3.31	+ 2.30	1.55	0	5	15	7	8	C. M. Wicher.
Poulan	Worth	365	21	77.1	+ 0.7	103	3	57	20	32	5.71	+ 3.39	1.60	0	13	9	14	7	C. T. Merritt.
Putnam	Marion	12	12	78.8	+ 1.2	100	3	68	30	26	7.22	+ 4.13	1.81	0	10	5	14	11	Mrs. J. M. Collum.
Quitman	Brooks	173	26	73.6	+ 1.0	90	1	49	20	25	3.60	+ 0.38	0.93	0	12	11	11	8	A. B. Jones.
Ramhurst	Murray	18	19	76.4	+ 3.3	98	4	52	20	32	2.00	+ 0.74	1.02	0	9	11	11	8	D. E. Humphreys.
Resaca	Gordon	657	18	79.4	+ 2.7	100	2	68	20	27	2.00	+ 1.61	1.10	0	11	11	5	14	D. A. Norton.
Rome	Floyd	576	53	79.4	+ 2.7	100	2	64	30	22	4.14	+ 3.25	1.87	0	18	13	5	12	W. M. Towers.
St. George	Charlton	5	5	80.2	+ 2.7	100	2	70	15	24	7.10	+ 1.08	1.84	0	13	5	12	13	A. N. Lund.
St. Marys	Camden	20	21	79.0	+ 2.6	100	2	64	30	22	7.10	+ 3.25	2.86	0	18	3	10	17	David C. Sterling.
Savannah	Chatham	65	61	79.2	+ 2.3	103	2	65	20	27	12.47	+ 0.35	3.16	0	18	5	13	12	U. S. Weather Bureau.
Statesboro	Bulloch	253	12	78.6	+ 3.7	103	4	63	29	33	8.66	+ 1.18	1.10	0	18	5	13	12	W. C. Cromley.
Talbot	Talbot	750	18	73.1	+ 0.4	97	4	50	20	35	4.26	+ 0.29	2.00	0	12	15	4	11	Dr. E. L. Bardwell.
Tallapoosa	Haralson	1,150	13	78.8	+ 1.2	99	3	68	30	26	10.42	+ 5.49	4.48	0	18	8	6	16	Frederick Ellison.
Thomasville	Thomas	273	30	73.6	+ 2.4	97	2	50	20	30	5.71	+ 1.27	3.00	0	12	16	4	10	U. S. Weather Bureau.
Toccoa	Stephens	1,050	26	79.4	+ 2.7	100	2	67	30	30	7.70	+ 1.27	3.00	0	12	16	4	10	Mrs. Alice Starko.
Valdosta	Lowndes	220	7	81.2	+ 4.2	100	2	69	19	24	12.95	+ 7.65	4.71	0	10	10	4	16	Miss Annie Twitty.
Valona	McIntosh	10	14	77.6	+ 3.5	100	1	59	20	29	7.91	+ 4.32	2.10	0	11	12	5	13	George E. Atwood.
Washington	Wilkes	630	21	80.4	+ 3.1	102	2	68	30	28	5.22	+ 0.92	1.80	0	16	12	3	15	Miss Ella B. Smith.
Waycross	Ware	131	23	76.6	+ 2.6	102	1	54	20	35	6.54	+ 3.48	1.39	0	13	12	3	15	Thomas Sasser.
Waynesboro	Burke	86	20	76.8	+ 1.5	99	4	58	20	29	2.84	- 0.20	0.96	0	12	12	3	15	Mrs. H. W. Blount.
West Point	Troup	620	22	76.8	+ 1.5	99	4	58	20	29	2.84	- 0.20	0.96	0	12	12	3	15	E. N. Dunn.
Woodbury	Meriwether	641	9								3.57		1.29	0	10	10	7	13	E. T. Riggins.
<b>Florida.</b>																			
Apalachicola	Franklin	24	8	79.6	+ 1.0	96	2	70	30	20	15.06	+ 0.12	1.51	0	16	7	22	1	G. H. Whiteside.
Arcadia	De Soto	61	11	79.0	+ 0.1	97	3	71	6	26	6.95	+ 0.60	2.00	0	22	8	18	4	C. S. Bushnell.
Archer	Alachua	92	27	81.0	+ 0.9	95	3	69	10	24	12.77	+ 1.92	1.47	0	21	7	18	5	R. B. Hodgson.
Avon Park	De Soto	150	13	80.1	+ 0.3	97	3	68	18	27	7.93	+ 0.28	1.59	0	18	10	4	16	William King.
Bartow	Polk	115	24	79.6	- 0.4	92	4	69	10	20	16.65	+ 9.21	3.85	0	12	5	22	3	William Hood.
Bradentown	Manatee	10	28	80.2	+ 0.8	99	4	69	6	28	15.53	+ 8.72	2.50	0	15	13	8	9	H. H. Ten Broeck.
Brooksville	Manatee	126	19	80.8	+ 2.7	101	3	67	27	26	11.10	+ 4.42	2.65	0	14				C. C. Feck.
Carrabelle	Franklin	10	13	80.6	+ 1.2	93	1	71	5	19	28.14	+ 22.97	8.95	0	13				J. J. Blomquist.
Cedar Key	Levy	10	23	82.4	+ 1.9	102	1	70	9	29	7.60	+ 0.64	1.32	0	13	10	15	5	J. B. Fessler.
Clermont	Lake	105	19	82.2	+ 3.1	103	3	70	20	27	4.48	- 2.75	1.40	0	8	9	17	4	S. S. Shiver.
Crescent City	Putnam	14	14	79.3	+ 1.9	102	4	66	30	26	9.39	+ 3.38	1.85	0	18	7	16	7	R. W. Storrs.
De Funiak Springs	Walton	193	14	80.9	+ 2.4	99	3	67	18	28	4.44	- 0.69	2.28	0	15	3	23	4	A. C. Haynes.
De Land	Volusia	27	15	81.9	+ 2.3	102	3	69	30	29	8.44	+ 1.66	1.98	0	18	21	4	5	C. T. Smith.
Eustis	Lake	56	21	81.8	+ 3.7	100	1	65	20	27	7.66	- 0.69	2.28	0	18	11	14	5	E. S. Hubbard.
Federal Point	Putnam	5	20	79.6	+ 2.2	97	2	72	27	10	10.60	+ 1.54	5.76	0	12	1	22	7	J. Wigglesworth.
Fenholloway	Taylor	75	5	80.2	+ 1.7	102	3	68	24	33	10.41	+ 1.72	2.21	0	17	13	13	4	W. B. C. Durvae.
Fernandina	Nassau	10	19	80.4	+ 0.5	93	3	70	18	19	9.06	+ 1.28	1.54	0	13	17	12	1	G. L. Brodick.
Fort Meade	Polk	125	23	81.2	+ 1.4	94	3	71	10	20	3.95	+ 3.47	1.90	0	7	10	13	7	Miss N. M. Gardner.
Fort Myers	Lee	12	40	80.4	+ 1.1	97	2	69	20	25	8.72	+ 3.19	1.67	0	18	9	6	15	T. C. Nicholson.
Fort Pierce	St. Lucie	6	11	79.7	+ 1.1	97	2	69	20	25	8.72	+ 3.19	1.67	0	18	9	6	15	John Schnabel.
Gainesville	Alachua	176	18	80.2	+ 1.0	98	3	68	19	26	10.84		2.18	0	17	17	9	4	J. B. Escott.
Grasmere	Orange	175	14	80.4	+ 1.0	98	3	68	19	26	10.84		2.18	0	17	17	9	4	B. A. Tibbits.
Hilliard	Nassau	69	3	80.4	+ 1.0	98	3	68	19	26	10.84		2.18	0	17	17	9	4	G. A. Angevine.
Hypoluxo	Palm Beach	9	16	81.9	+ 1.3	93	1	69	23	12	4.36	- 5.02	0.66	0	13	11	11	2	W. H. Miller.
Inverness	Citrus	43	12	79.6	+ 0.8	95	3	69	23	12	11.12	+ 5.46	2.68	0	21	0	12	18	U. S. Weather Bureau.
Jacksonville	Duval	101	41	81.0	+ 3.7	99	3	69	5	21	7.69	+ 0.34	3.55	0	12	9	9	12	A. M. C. Brasch.
Johnstown	Bradford	125	12	81.2	+ 2.6	100	1	67	30	28	7.03	+ 1.51	1.71	0	14				U. S. Weather Bureau.
Key West	Monroe	14	41	83.0	+ 0.5	91	4	72	21	14	4.35	- 2.44	2.79	0	12	1	19	10	J. A. Simpson.
Kissimmee	Osceola	65	19	81.4	+ 1.2	97	1	70	20	24	7.59	+ 0.28	1.20	0	16	2	20	8	W. B. Knight.
Lake City	Columbia	210	27	79.7	+ 1.4	98	3	68	21	24	11.03	+ 5.86	2.95	0	19	6	8	16	L. D. Niles.
Lucern Park	Polk	210	27	82.4	+ 1.4	98	3	68	21	24	11.03	+ 5.86	2.95	0	19	6	8	16	Griffing Bros. Co.
Macleenny	Baker	125	15	80.1	+ 1.5	99	3	68	30	28	6.67	+ 1.85	1.03	0	17	4	15	11	E. J. Vann.
Madison	Madison	200	12	79.6	+ 0.8	100	3	69	28	25	10.67	+ 5.11	2.12	0	16	13	1	16	J. F. Farley.
Malabar	Brevard	24	18	80.8	+ 0.6	95	2	69	18	23	5.56	+ 2.80	2.58	0	9				W. J. Watson.
Marianna	Jackson	80	9	78.6	+ 0.4	99	4	67	26	27	13.22	+ 7.43	2.90	0	19	11	4	15	F. Ulrich.
Merritts Island	Brevard	20	29	80.9	+ 0.7	95	3	70	19	18	5.54	- 2.23	0.61	0	14	0	27	3	U. S. Weather Bureau.
Miami	Dade	47	10	82.4	+ 0.9	90	11	70	7	18	2.08	- 7.53	0.50	0	13	5	12	13	G. A. Chalker.
Middleburg	Clay	10	11	80.0	+ 2.2	101	3	69	4	29	9.11	+ 1.31	1.97	0	15				W. H. Trimmer.
Molino	Escambia	49	10	79.1	+ 1.3	100	3	64	24	30	11.28	+ 4.36	5.80	0	10	13	7	10	G. B. Miller.
Monticello	Jefferson	207	8	79.0		100	4	65	25	25	14.45		4.50	0	10				Miss Addie Grubb.
Mount Pleasant	Gadsden	260	6	77.2		99	4	64	24	30	9.61		2.10	0	17				F. Nordman.
New Smyrna	Volusia	9	27	80.6	+ 2.1	95	3	69	18	23	5.30	- 2.85	1.48	0	13	11	7	12	W. K. Armstrong.
Observation Island	Palm Beach			83.0		93	13	71	21	16	2.92		1.87	0	5				J. C. Caldwell.
Ocala	Marion	98	22	79.6	+ 0.8	97	2	70	6	26	8.92	+ 2.72	2.71	0	16	9	11	10	J. D. Graham.
Orange City	Volusia	39	18	80.4	+ 0.6	100	3	68	17	28	4.98	- 1.74	2.19	0	15	11	15	4	James Thomson.
Orlando	Orange	111	19	80.9	+ 1.4	97	3	70	19	22	9.63	+ 2.02	2.60	0	15	3	19	8	U. S. Weather Bureau.
Pensacola	Escambia	149	32	78.8	+ 0.9	97	4	69	21	21	9.97	+ 4.74	3.62	0	18	7	9	14	R. H. MaWhinney.
Pinellas Park	Pinellas	20	1	79.7		96	4	70	4	26	26.00		6.00	0	15	10	15	5	E. B. Trask.
Plant City	Hillsboro	121	18	78.8	- 0.6	92	3	70	10	18	13.38	+ 6.19	2.20	0	15				Dunellon Phosphate Co.
Rockwell	Marion	10	10	80.6		100	3	70	6	26	12.14	+ 6.81	2.50	0	16				W. A. Emmons.
St. Andrew	Washington	14	15	79.4	+ 0.														

TABLE 1.—*Climatological data for September, 1912. District No. 2—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<i>Alabama—Continued.</i>																			
Calera.	Shelby.	500	11	80.2	+ 4.6	101	4	60	30	30	7.02	+ 3.67	3.20	0	7	0	22	8	L. G. Privett.
Camp Hill.	Tallapoosa.	738	11	79.2	+ 1.7	99	5	63	30	24	2.14	- 2.09	0.69	0	7	0	22	8	Dr. Lyman Ward.
Citronelle.	Mobile.	331	24	79.2	+ 1.7	99	5	63	30	24	4.78	+ 0.15	1.74	0	12	12	9	9	Rev. W. H. Rowe.
Clanton.	Chilton.	590	19	70.7	+ 1.7	98	4	56	20	32	4.31	+ 1.98	2.10	0	11	11	9	9	Joseph B. Downs.
Cochrane.	Pickens.	100	2	76.5	+ 3.0	96	4	53	21	28	2.44	.....	0.90	0	4	3	22	1	T. H. G. Cook.
Cordova.	Walker.	334	21	74.1	.....	95	2†	50	21	34	4.25	+ 1.33	3.10	0	7	19	6	5	Scott Maxwell.
Cullman.	Cullman.	802	4	79.2	+ 1.5	98	3†	64	24	25	2.77	.....	0.75	0	7	19	6	5	Eugene A. Grayot.
Dadeville.	Tallapoosa.	760	7	78.0	.....	96	5	58	19†	23	4.09	.....	1.60	0	6	.....	.....	.....	Dr. W. B. Fulton.
Daphne.	Baldwin.	21	20	78.0	.....	96	5	58	19†	23	5.41	- 0.76	2.25	0	11	11	8	11	John H. Young.
Demopolis.	Marengo.	20	20	78.0	.....	96	5	58	19†	23	3.60	+ 0.63	1.96	0	8	.....	.....	.....	George E. Pogram.
Dothan.	Houston.	200	28	75.3	- 0.7	94	4	59	20	24	6.28	.....	1.38	0	17	.....	.....	.....	L. G. Biggers.
Eufaula.	Barbour.	200	28	75.3	- 0.7	94	4	59	20	24	5.00	+ 1.78	1.08	0	15	.....	.....	.....	Dr. J. B. Whitlock.
Flomaton.	Escambia.	91	20	78.6	+ 2.1	97	1†	64	24	27	4.79	+ 1.33	2.00	0	9	6	5	19	T. J. Farris.
Fort Deposit.	Lowndes.	520	28	77.4	+ 1.4	97	1	62	20	26	5.40	+ 2.88	1.00	0	9	.....	.....	.....	J. F. Hattermer.
Gadsden.	Etowah.	621	28	77.4	+ 3.4	97	4	53	20	31	2.59	- 0.82	0.74	0	7	.....	.....	.....	D. P. Goodhue.
Goodwater.	Coosa.	826	17	76.0	+ 0.1	96	1†	54	20	34	3.30	+ 0.72	1.50	0	8	.....	.....	.....	Miss Daisy Buice.
Greensboro.	Hale.	220	33	77.8	+ 2.5	96	4	59	27	23	3.94	+ 1.02	3.07	0	7	.....	.....	.....	W. E. W. Yerby.
Greenville.	Butler.	444	11	76.8	+ 1.3	98	4	50	30	37	4.85	+ 1.44	1.72	0	8	.....	.....	.....	E. M. Lewis.
Hamilton.	Marion.	16	16	76.8	+ 1.3	98	4	50	30	37	4.22	+ 1.61	1.20	0	6	.....	.....	.....	Prof. H. O. Sargent.
Healing Springs.	Washington.	362	20	77.8	+ 1.5	95	2†	65	20†	22	3.48	.....	1.48	0	8	.....	.....	.....	James E. Lipscomb.
Highland Home.	Crenshaw.	20	20	77.8	+ 1.5	95	2†	65	20†	22	4.22	+ 1.85	0.87	0	15	9	9	12	Prof. Samuel Jordan.
Livingston.	Sumter.	160	28	77.0	+ 1.2	95	4	57	27	25	2.55	+ 0.16	1.21	0	6	.....	.....	.....	Robert L. King.
Lock No. 4.	Talladega.	510	15	77.0	+ 2.7	96	1	56	20	31	4.65	+ 1.87	1.90	0	7	21	3	6	U. S. Engineers.
Mentone.	Dekalb.	1,595	5	77.0	+ 2.7	96	1	56	20	31	2.35	.....	1.30	0	3	.....	.....	.....	E. Mason.
Milstead.	Macon.	9	9	79.2	+ 2.7	97	5	67	24	20	5.10	.....	2.00	0	15	.....	.....	.....	W. U. Wall.
Mobile.	Mobile.	84	40	79.2	+ 2.7	97	5	67	24	20	5.76	+ 0.74	2.25	0	13	9	10	11	U. S. Weather Bureau.
Montgomery.	Montgomery.	240	40	77.8	+ 2.0	98	4	61	20	25	6.31	+ 3.43	1.66	0	15	11	9	10	Do.
Newbern.	Hale.	20	20	78.8	+ 1.9	101	1†	59	27	30	10.78	+ 8.23	9.00	0	9	6	15	9	Dr. J. Huggins.
Oneonta.	Blount.	857	18	74.6	+ 1.9	93	1†	53	20†	31	3.59	+ 0.47	1.70	0	11	11	1	18	Aquilla J. Ketchum.
Opelika.	Lee.	917	33	75.6	+ 1.0	95	1	61	20	25	3.63	+ 0.95	0.79	0	11	.....	.....	.....	A. H. Read, jr.
Ozark.	Dale.	400	10	80.1	.....	97	4	66	30	23	6.45	.....	1.70	0	10	.....	.....	.....	James A. Scott.
Prattville.	Autauga.	281	12	76.9	+ 1.2	96	4	57	20	28	5.58	.....	1.58	0	12	10	13	7	Joseph B. Bell.
Pushmataha.	Choctaw.	21	21	77.4†	+ 1.5	95	5	60	20†	26	4.15	+ 1.21	1.65	0	9	.....	.....	.....	W. N. Horn.
Robertsdale.	Baldwin.	148	148	79.2	+ 2.7	101	4	60	20	29	12.38	.....	2.81	0	21	.....	.....	.....	Carl Boscack.
Selma.	Dallas.	147	32	79.2	+ 2.7	101	4	60	20	29	3.76	+ 1.62	2.00	0	8	.....	.....	.....	Charles F. Briston.
Spring Hill.	Mobile.	312	8	78.9	.....	99	2†	66	24†	27	4.08	.....	1.48	0	14	.....	.....	.....	Spring Hill College.
Talladega.	Talladega.	554	22	76.4	+ 1.9	94	4	57	20	27	3.66	+ 1.00	1.17	0	7	10	15	5	W. E. Henkel.
Tallassee.	Elmore.	21	21	76.4	+ 1.9	94	4	57	20	27	5.54	+ 3.17	2.48	0	15	.....	.....	.....	P. A. Noble.
Thomasville.	Clarke.	385	21	76.4	+ 0.6	96	4†	64	30	24	4.80	+ 2.03	2.00	0	6	.....	.....	.....	Miss H. T. Forster.
Troy.	Pike.	581	4	78.2	.....	98	4	65	20†	24	10.31	.....	2.56	0	20	4	20	6	F. L. Zimmermann.
Tuscaloosa.	Tuscaloosa.	230	31	78.0	+ 2.5	99	1†	56	27†	29	2.85	+ 0.97	1.25	0	8	.....	.....	.....	W. S. Wymann.
Tuskegee.	Macon.	12	12	78.8	+ 0.8	101	4	60	19	30	5.94	+ 3.94	1.40	0	11	2	17	11	Prof. George W. Carver.
Union Springs.	Bullock.	216	25	77.6	+ 1.8	97	4	61	20	23	5.04	+ 1.81	1.81	0	10	.....	.....	.....	P. L. Cowan.
Uniontown.	Perry.	273	26	80.0	+ 3.5	100	4	59	27	31	3.51	+ 0.84	2.27	0	5	13	8	9	L. H. Moore.
Valley Head.	Dekalb.	1,031	27	75.6	+ 4.2	99	4	48	20	34	3.22	+ 0.07	1.64	0	3	16	8	6	M. T. Floyd, M. D.
Wetumpka.	Elmore.	205	20	79.8	+ 2.5	103	4	59	20	31	4.95	+ 2.54	1.65	0	6	.....	.....	.....	U. S. Engineers.
<i>Mississippi.</i>																			
Aberdeen.	Monroe.	210	24	76.2	+ 2.8	98	8†	51	30	34	4.69	+ 1.83	1.83	0	7	20	4	6	L. D. Godfrey.
Bay St. Louis.	Hancock.	28	19	81.4	+ 2.5	97	9	68	24	23	2.34	- 3.00	0.71	0	15	14	11	5	Brother Stanislaus.
Biloxi.	Harrison.	24	21	81.4	+ 3.1	103	4	69	24†	24	1.80	- 4.77	0.57	0	13	13	7	10	Miss M. Josie Pope.
Booneville.	Prentiss.	504	18	74.2	+ 0.3	95	4†	46	30	28	4.31	+ 1.78	2.20	0	4	18	10	2	Dr. D. T. Price.
Brookhaven.	Lincoln.	500	24	79.6	+ 3.2	100	5†	59	20	35	0.48	- 3.13	0.33	0	6	20	4	6	W. J. Bee.
Columbia.	Marion.	110	8	77.2	+ 1.3	100	4	52	27	33	5.10	.....	1.55	0	11	18	3	9	N. R. Drummond.
Columbia.	Lowndes.	191	24	77.2	+ 1.3	100	4	52	27	33	4.00	+ 0.83	1.48	0	9	17	3	10	J. B. Love.
Crystal Springs.	Copiah.	468	4	78.0	+ 1.7	96	3†	52	29†	33	0.49	- 2.54	0.18	0	5	19	11	0	D. H. Miller.
Edinburg.	Leake.	248	7	76.5	.....	96	4	53	27	32	3.98	.....	1.40	0	6	17	6	7	J. Y. Blocker.
Enterprise.	Clarke.	460	22	79.0	+ 2.3	99	9	59	30	32	4.81	.....	2.03	0	9	.....	.....	.....	J. B. Thompson.
Hazlehurst.	Copiah.	326	2	79.0	+ 2.3	99	9	59	30	32	0.85	- 1.78	0.39	0	6	18	3	9	J. D. Granberry.
Hickory.	Newton.	280	25	79.2	+ 3.1	98	5	56	30	33	4.42	.....	1.39	0	5	17	2	11	T. N. McMullen.
Jackson.	Hinds.	446	24	75.8	+ 1.5	95	4†	55	27†	28	1.54	- 1.36	0.84	0	8	15	5	10	A. S. Hall.
Lake.	Scott.	241	8	79.0	.....	101	5	62	24†	31	1.67	- 1.05	0.82	0	5	19	2	9	Mrs. Eddie McNeel.
Laurel.	Jones.	18	18	80.0	+ 2.1	100	5	62	24	31	6.13	.....	2.40	0	10	17	5	8	Thomas W. Flynt.
Leakesville.	Greene.	561	23	77.0	+ 2.0	96	4†	53	27	29	4.05	- 0.74	2.25	0	5	.....	.....	.....	Dr. Sam Pool.
Louisville.	Winston.	230	9	79.8	.....	96	3†	65	27†	26	4.72	+ 2.02	1.65	0	6	.....	.....	.....	B. T. Webster.
McNeill.	Pearl River.	185	24	77.2	+ 2.1	98	3†	53	27	28	2.88	.....	1.83	0	7	19	2	9	Prof. E. B. Ferris.
Macon.	Noxubee.	415	16	79.6	+ 2.8	98	5†	62	30	29	2.98	- 0.22	1.32	0	9	9	15	6	Finis E. Carleton.
Magnolia.	Pike.	375	22	76.4	+ 3.7	94	4	55	27	25	2.55	- 1.47	0.61	0	10	11	12	7	Miss Ruby V. Roberts.
Meridian.	Lauderdale.	76	7	76.4	+ 3.7	94	4	55	27	25	2.52	- 0.95	1.61	0	10	11	12	7	U. S. Weather Bureau.
Merrill.	George.	311	24	76.0	+ 1.5	99	1	51	30	31	3.51	.....	2.28	0	13	16	5	9	Otto C. Tompkins.
Okolona.	Chickasaw.	15	3	80.0*	.....	97	4	68	24	21	3.13	- 0.63	1.68	0	6	18	4	8	E. J. Henson.
Pascagoula.	Jackson.	10	24	79.8	+ 2.3	97	4	68	25†	25	4.24	.....	1.36	0	8	.....	.....	.....	McVea Young.
Pearlington.	Hancock.	197	7	79.8	+ 2.3	97	4	68	25†	25	4.95	- 0.71	1.24	0	14	9	13	8	Miss Annette Koch.
Shubuta.	Clarke.	278	13	78.2	+ 2.7	99	5	60	25†	29	3.27	.....	1.81	0	5	17	10	3	George A. Floyd.
Tupelo.	Lee.	191	25	78.2	+ 2.7	99	5	60	25†	29	4.08	+ 1.58	2.25	0	8	11	5	14	W. S. Vincent.
Waynesboro.	Wayne.	3	3	78.2	+ 2.7	99	5	6											

TABLE 2.—Daily precipitation for September, 1912. District No. 2, South Atlantic and east Gulf States.

a.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Virginia.</b>																																	
Arvonia.....	James.....	T.	T.					.23						.05	.05		.04		1.15	.30				2.20	1.42	.04		.18				5.66	
Ashland.....	do.....			T.	T.									T.	T.		.07		1.12	1.11			.81	1.02	.11						4.04		
Buchanan   .....	do.....				.04		.09	.79											1.66	2.18				1.66	2.18	.06		.11				6.89	
Callaville.....	Chowan.....				.06	.10		T.											.86	.59				1.20	.91							3.72	
Cape Henry.....	Coast.....				.10	.13													1.14	.67				.29	.46	.01						2.80	
Charlottesville.....	James.....		.60											T.					1.30	.32				3.45	2.88	.32		.70				9.03	
Clarksville   .....	Roanoke.....						T.	.05											.85	.64				.90	1.42							3.86	
Columbia.....	James.....	.25				.25	.10	.05						.10					.50	.94				1.90	1.21		T.	T.				5.40	
Danville   .....	Roanoke.....		.01	1.68		.02		.10					T.		.04				1.72					1.41	1.76	.03		.05	.03			6.85	
Diamond Springs.....	Coast.....			.25	.04			T.											2.16	.20				.15	.55	.12	.02					3.29	
Dry Bridge.....	James.....																	.41	1.57	T.				1.17	.47			.03				3.65	
Hampton.....	Coast.....			.05	.04														30	1.25	.02			.24	.40	.04	.09	.09				2.52	
Hot Springs.....	James.....		.04					T.								.20			.55					2.21	.53		.08	.05				3.66	
Ivor.....	Chowan.....			.04	.10														3.20					1.20	.20			.05				4.74	
Lassiter.....	James.....						.05						T.				.52		2.30	.60				1.55	1.02							6.04	
Lexington.....	do.....	.07				.04	.26							T.					.83	.27				2.31	.22			.08	.01			4.09	
Lynchburg.....	do.....	.28		.02		.11								.03					1.50	.07				.07	3.47	1.32						6.98	
Newport News.....	Coast.....		.13	.02															1.94	.22				.35	.10	.07	.10					3.01	
Norfolk.....	do.....		.15	.04															1.34	.42				.31	.22	.07	.05	.01				2.61	
Randolph   .....	Roanoke.....			.07				.55											2.45	.14				1.03	.76	.17						5.17	
Richmond.....	James.....	.29		T.	.04									T.	.07	.25			.70	.99				1.71	.14	T.	.01	T.				4.20	
Roanoke.....	Roanoke.....		.18	T.	.11		.02	.25						.06					.67	.44				T.	2.32	.80		.06				4.91	
Rocky Mount.....	do.....			.12				.14						.17					1.07	.16				3.20	.70	.20		.18				5.94	
Ruckersville.....	James.....	.09	.35		.05		.36	1.06									.05		.50	.98				3.10	2.35			.03				9.55	
Spottsville (near).....	Chowan.....			.04															3.32	.18					.76	.10		T.	.13			4.58	
Williamsburg.....	James.....			.15	.15														.15	.85				.10	.78		T.					2.18	
<b>North Carolina.</b>																																	
Albemarle.....	Pedee.....				.17			.17	.01	.15								.99		.53			.01	1.38	.25			.50	.01			4.17	
Beaufort.....	Bogue.....			.04	.40				.04	.36	.43	.13							.92		.04	.44	.05		.75	1.99			.04	.03	.01		5.67
Belhaven.....	Pungo.....	.03				.03														.03			2.00	4.00	.25							6.34	
Brewers.....	Pedee.....			T.	T.	.41	1.25	1.51			.02	.01	.88	.20	.05				.11	.50				.32	2.63	1.21	.02	.12	.12	.01		9.37	
Caroleen.....	Santee.....												.98	.10	.10				.08					.28	1.84	.32		.12	.02	.07		3.91	
Chalybeate Springs.....	Cape Fear.....		.07	.14			.10												.23	.25	.62			T.	1.05	.95		T.	.03			3.59	
Chapel Hill.....	do.....		.10	.11			.59												.16	.97				T.	.83	.36			.05			3.17	
Charlotte.....	Santee.....	T.		T.	.01	.01	.37	.51			T.	T.	T.	.21					.51	.07				.19	1.69	.10		.18	.53			3.50	
Chimney Rock.....	do.....						.37	.12			.20		.33						.44					1.90	2.64	.66		.76	.20	.34		7.96	
Durham (near).....	Neuse.....	.04					.40												.04					1.12	.64	.40		.03				2.96	
Eagletown.....	Chowan.....		.13	.37			.09												.74	.20				.70	1.65	.50	T.	.02				4.40	
Edenton.....	Coast.....		.10	1.00			.05									.20			.60					.90	.70							3.55	
Elizabeth City.....	Pasquotank.....							2.00											.75					.20	1.50							4.45	
Elizabethtown   .....	Cape Fear.....	.58	.22							.30	.26								.45	.15					.96							2.92	
Enfield (near)   .....	Tar.....			.20			1.50	.12											.05	.90	.48			.12	7.72	1.78						5.87	
Fayetteville   .....	Cape Fear.....			.25			.38	.02			.01								.01					T.	3.66	.20			.02			4.54	
Globe (near).....	Santee.....			.23			.06				.3.37					.60			.35					.56	1.99			.27	.20			7.63	
Goldsboro   .....	Neuse.....		.04	.56	.03		.09									.01	.20		.88	.25				.88	2.05	.10						4.31	
Gorge (near).....	Santee.....		.04	.40										1.63	.26	.17			.18	.10				.71	.10			.12	.63	.24		7.45	
Graham   .....	Cape Fear.....			.05										.13	.03				.02					.49	1.18			.06				2.95	
Greensboro   .....	do.....			.12		.03								.08	.03				.01	.58	.50	.15		1.41	3.75	.16		.03	.10			6.95	
Greenville   .....	Tar.....	T.		.20	.26		.13												.04	.76	.34				.76	.34		.07	.02	.01		4.08	
Hatteras.....	Coast.....	.26	.21	.26					T.	T.	.18								.02					.03	.81			.01				2.74	
Henderson.....	Tar & R'n'k.....	.04	.40		.02												.04		.65	1.20				.75	.90	.05		T.				4.05	
Kings Mountain.....	Santee.....		.03	.13			.37				.07		.20	.13					.05					.03	1.60	.38		.13			.02	3.09	
Kinston.....	Neuse.....		.12			.85													.17	2.26					.75	.90						4.60	
Lincolnton.....	Santee.....						.05						.32	.18	.10									3.00				.40				4.05	
Louisburg   .....	Tar.....	T.		.10		.10	.20												.99	.42				.99	.12							2.92	
Lumberton   .....	Lumber.....		.62	.25	.37		.03		.27	.45	.58	.18	.24						.23	.27	.02			.04	2.32	.01			.11		T.	5.99	
Manteo.....	Coast.....		.24			.43													.42					.18	4.34				.36			5.97	
Marion.....	Santee.....		.04						.01				T.	.73	.31	.33	.02		.42	.09				.96	2.14	.29		.39	.64	.08	.09	6.56	
Middletown.....	Coast.....	.98		.05	.12	.35					.05								.18	.01					.18	.01						4.37	
Monroe   .....	Cape Fear.....			.04	.28		.08	.02											.03					.65	1.35	.25						3.07	
Monroe.....	Pedee.....	.60						.35								.10	.18	.15	.39					T.	1.60	.90		.75				6.02	
Morganton.....	Santee.....		.03	.05	T.	.26							1.90	.06	.08				.07	.09	T.			.21	2.30	.28		.10	.34	T.	.03	5.80</	

TABLE 2.—Daily precipitation for September, 1912. District No. 2—Continued.

Stations.	Watershed.	Day of month																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>South Carolina—Continued.</b>																																	
Batesburg II	Edisto							T.	.16		.14	.31	.54		.05					.06			T.	.62	2.15			.48	.82	T.		5.33	
Beaufort	Coast		.12			1.25	1.75	.25	1.00	.35	1.25				.32					T.	.25	.50	2.51		.10		.18	.25	.10	.13	10.31		
Blackville II	Edisto			.02		.47	.28	.03	.15	1.15	1.03	.57		.73	.03						.02		.09	.61	.70	.03		.20	.58	.05	.06	8.76	
Blairs II	Broad					.12	.33								.12								.68	1.41			.42	.82	.06		3.96		
Bowman	Edisto			.08	.70	1.26			.30	.48	.50	.29	.45	.28	T.					.12			.20	.81			.28	.08	.05	T.	5.88		
Broxton	Salkehatchie			.23	.10	.26	.23				.63	2.05											1.96	2.05			.21	.08			7.46		
Calhoun Falls II	Savannah										.47	2.27		.11	.29								.20	1.54	1.16		.87				6.91		
Camden	Waterlee									.35	.10	.14	.84								.10			.30	6.23			.30				8.20	
Catawba II	Catawba				.09			.40						.20	.44						.10			.38	1.20			.55	.35			3.71	
Charleston	Coast		.78	1.66	.30	.48	.03	.04	4.00	.62	T.			.16		.05	.01	1.00		.79		T.	.44	.13	.07			T.	.05	.03		10.42	
Cheraw II	Pedee			.18				.17		.05	.32	.16												.12	3.02	.02		.31	.04			5.06	
Clemson College	Savannah				.05			.05	.82	.24					.38								1.25	2.60	.20		.39			.22	6.20		
Columbia	Congaree			.10	.03	.38	T.	.25	.09	.05				T.	.05					.04			.58	3.49	.31		.08	.45	T.	.08	T.	5.98	
Conway II	Waccamaw			.10	T.	.30	.10		.91	.55	1.65				.48					.10	.34		T.	.20	.90							6.11	
Dillon	Little Pedee	T.	T.	T.	T.	T.	T.	.57	.01	.31			.41	T.	.05			.21	.01	.14			T.	.35	1.93	.01	.11	T.	.03			4.14	
Edisto II	Edisto						.50		.45	.69	1.51	.11	.06										.28	.45	1.38					.08	6.26		
Effingham II	Lynches		.10		T.	T.	T.	T.	T.	T.	.85	.65	.73						.20				T.	.95								3.48	
Ferguson II	Santee			.90		.70		.85	1.00	.95		.35											.05	.42	2.18			.20	.08			7.68	
Florence II	Pedee		.46		.11			.28	.10	.36	.18	.12							.03					.04	2.80			.06		.03		4.57	
Georgetown	Coast				T.	.15		1.08		1.10	1.20	.75	.55							.25	T.		T.	2.50	T.			.10	.25			5.83	
Greenville II	Saluda				T.	.18	T.		.50			.25	.19	.08	.06								T.	2.66	.25			.10	T.	.03		4.30	
Greenwood	do				.17				.06						.32	.24								1.57	2.21			.16	.32			5.73	
Heath Springs	Waterlee			.12			T.		.25		.10	.12	.79								.23			.42	.20			.04				4.01	
Kingstree II	Black				.20	T.	.12	.58	.10	.12	.79				.20	.22								.36	1.65	.70						5.86	
Liberty	Savannah		T.		T.	.02	T.	.30	.02	.70					.50									.42	.20		.15	.30	.02	T.	.10	3.94	
Little Mountain	Saluda				.20			.20	.75						.08									.50	1.52	.08		.08	.57	T.	.19	T.	4.58
Meriwether	Savannah			T.	.21	.32		T.	.42	.50					.19									.35	1.77	.51		.25	.92		.16	T.	5.77
Monetta	Edisto			.36	.35	.02	T.	.37	.31		.04				.26				.05	.05				.40	1.65	.10		.12	.94	T.	.12		5.66
Newberry	Saluda			.35	.85	.04		.03	.05	.04					.73	.04				.12	.12			1.80	.66			.08		.02			3.52
Pelzer II	do							.02	.80	.04													.50	1.08			.07	.08	.17			7.27	
Pinopolis	Cooper			.29	1.19	.65	.27	1.04		.96	.97													.74	1.19			.40	.03	.07			7.35
St. George II	Edisto			.17		.11		.33	1.55	1.95	.42				.09	.24								.35	.90	.02		.40	.03	.07			4.73
St. Matthews II	Santee			.06	.03	.93	.70	.25	.55	.09					.75	.24								.28	1.16	.80			1.25	.15			5.12
Saluda	Saluda			.32				.10	.31	.09					.75	.24								.33	3.44	.27		T.	1.77		.05		6.66
Santuc	Broad			.10	.04	.02		.40	.08		.07	.11			.08									.13	1.21			.15	.05		.08		8.13
Smiths Mills II	Pedee				.51	.16	.13		.08	.11	2.41													.05	.63			.15	.05				2.94
Society Hill	do		.46		.33			.10	.39	.42														.16	.77			.07					11.00
Spartanburg II	Broad						.12		.05	.04					.15	.14								.57	1.82	.06		.01	.01	.08	.11		3.99
Summerville	Ashley		.07	.08	.45	.48	.08	.55	2.36	4.04	.16	T.			.33	.02								.38	1.48	.07		.10	.03	.04	.15		8.89
Trenton	Edisto			.21				T.	.15	.53					.33	.02								.35	.25			.03	.04	.15			6.10
Walterboro	Ashpeo		.17	.03	.22	.04	.22	.29	.95	1.94	.02	.70	.02						.20		.12				1.60	1.40		.60	.40	T.			3.50
Winnsboro	Broad			T.	.60			1.50							.80									1.01	1.40	.20		.80					6.96
Winthrop College	Catawba		.20					.20																									
Yemassee II	Combahee				.19	.74	.25	.35		.27	.71	1.67	.03	.23		.05	.03			.09	.01			.80	.51	.36	.07	.02	.14		.26		
<b>Georgia.</b>																																	
Abbeville II	Ocmulgee				1.25	T.	.93	.07	.26	T.	.91	.18		.17	T.	T.				.34			.51	1.50	.25	T.		.25	.46	.14		7.22	
Adairsville	Coosa			1.05		T.									1.30								1.70	.30				T.	.55			5.80	
Albany II	Flint			.01		.12		.15	.14		.54	.19	.44							.06	1.20			.03	.04			.55	.67	.35		6.96	
Allapaha II	Allapaha			.01			.31	.03	.16		.56	.57	.03	.02								.01	.01	1.03	.20	.05			.80	.10		4.21	
Americus II	Flint					.30		.10	.11		.50	.20	.40		.20									.26	.01				.15	.08		4.14	
Athens II	Oconee				T.	T.					.09	.37			.05	.46	.81			.02			.45	.25	.02			1.03	.15	.09		3.52	
Atlanta	Chattahoochee								.11	.07		.05	.46	.81									.02	.43	.82	.32	T.	.44	.94	T.	.01	.01	4.37
Augusta	Savannah			T.	.01	.19		T.	.54	.32	.02	T.	.41					.28	.01	.02				.06	1.56	2.00		.06	.17	.15	.05	6.28	
Bainbridge II	Flint			.18	.05	.20		T.	.06	.40	.48	T.											.15	.90	1.95			.13	.51			4.20	
Barnesville	do							.10	.30	.67													.16	1.84	2.25							7.21	
Butler II	do				.28					.57	.67												.73										6.11
Camak	Savannah			.42	.68				.57	1.30	.31				.26								.08	1.67	.27			T.	.05	T.		3.25	
Canton	Coosa			.44					.08						.12								.08						.12			2.92	
Carlton	Savannah							T.	.40	.12					.12									2.00	2.00	.50		.70	.43		.08	9.12	
Clayton	do		.40		.05				.75	1.00	1.12	.44			.05								.07	T.	.83	.15							

TABLE 2.—Daily precipitation for September, 1912. District No. 2—Continued.

Stations.	Watershed.	Day of month.																												Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Georgia—Continued.</b>																																	
St. George II	St. Marys				.08	1.87	.39	.54	.87	.32	.03	.42		.02					.45	.10	1.14	.89	.15	.15	.12		.27	1.39	T.		9.20		
St. Marys	do.				1.42	1.84	.09	.47	.19	T.	.35								1.11	.90	.06	.16	.12	.10			.30	.29	.11	.03	7.10		
Savannah	Savannah				.03	.91	2.54	T.	.06	.06	1.10	.50	.09		T.			.07		.07	.90	1.55	.16	.14		.04	.30	T.	.11	.03	8.66		
Statesboro	Ogeechee	T.			.25	.45	.92	1.44	.17	.32	3.16	.87	1.09	T.	.11			T.		.07		.60	1.17	.70	.09		.13	.42	T.	.30	.28	12.47	
Talbotton	Chattahoochee				.35						.30	.50	.13					T.	.02	.06		.92	1.10					.10	.65	.08	4.26		
Tallapoosa II	Tallapoosa																			.21			2.00						.31		3.27		
Thomasville	Ocklocknee		.03	.09	.46	.01	.46	.05	.20	1.06	1.27	.71							.47	T.	.05	T.	2.47	2.44	.58		.04	T.	.02	T.	.01	10.42	
Toccoa II	Savannah								.72	.58		.67							.03	.10		T.	2.03	.00	.05			.05	.07		.10	5.71	
Valdosta II	Suwanee					.45	T.	.35	.30	.40	.80	.70	T.								T.		2.10	1.30	.75			T.	.55		7.70		
Valona	Coast				.31	.21	4.71		.55	1.54	1.00	.62									1.21		.08	2.04	1.91			T.	.82	.34	.07	12.95	
Washington II	Savannah						.23		.34	.58	.14	12.10						.07					.06	.23	.41	.14			1.80	.25	.07	5.22	
Waycross II	Satilla		.20				T.	.26	.34	.58	.13	.51	.22		.01					.01			.06	.30	.70			.70	.12			6.54	
Waynesboro II	Savannah						T.	.33	.08	T.	.12	1.20	.90	1.30		.40							.05	.96	.05			T.	.17	.72	.04	2.84	
West Point II	Chattahoochee										.11	.01	.02	.03		.30				.23												3.57	
Woodbury II	Flint				.36		.18																										
<b>Florida.</b>																																	
Apalachicola	Coast				.80	T.	T.	.10	.30	.19	.20	.81	1.30	.65					T.	.50	.15	2.20	3.80	.10	.05			T.	.95	3.05		15.06	
Arcadia	Peace Creek			.08	.02	.90	1.04	.02	1.51	.55	.11	.02	.12	.17	.10	.15	.01		.09	.05	.46	.06	.25	.50		.10	.04					6.95	
Archer	Waccassassa			.15	.02	2.00	.25	1.20	1.42	1.04	1.75	.74	.01	.01					.01	.77	.70	.37	.21	.86	.42			.78	.05	.01		12.77	
Avon Park	Kissimmee		.42	.18	.32	.03	.37	.58	.48	.96	.07	.05			.02	.04			.24	1.47	1.25	.67	.13	.35	.10	.05				.15		7.93	
Bartow II	Peace Creek			.40		.01	.12	.64	.45	1.59	.99	.12	.01			.03				.18	.48	.56	.00	.07	.58	.14	.12					8.09	
Bradentown	Manatee						.15	3.50	3.56	3.85	.63							.28		.68	1.00		.17	1.33						.20		16.65	
Brooksville	Withlacoochee	1.30		.80		.30	2.50	.68	1.78	1.40		.30	.15						1.75	.50	.90	1.53				1.00		1.27		.67		15.53	
Carrabelle	Coast				.32	.25			.20	.33	.30	2.00	.20	.25						.39		.21	1.32	.34					.30	.10		11.10	
Cedar Keys	do.				2.53	.05	.87	1.95	8.95	2.33	3.20	5.85	.15							.39		.21	1.32	.34								28.14	
Clermont	Lake					.20	.90	1.32	.65	.20	.15								.30	1.00	.60	.40	T.	.75	.38					.75		7.60	
Crescent City	St. Johns					.60	1.05	.05		.75	.08					.10				.45		.82	1.26	.98	T.		.06	.14	T.	1.40		4.48	
De Funiak Springs	Choctawhatchee				.40	.24	.46		.07	.05		.06	1.85	.67	.27				1.06		.82	1.26	.98	T.		.06	.14	T.	.82	.18		9.39	
De Land	St. Johns				.12	.05	.31	.18	.38		.42	.03							.65	1.46	.15	.25	.16	.02					.08		.18	4.44	
Eustis II	Lake			.08	.19	.07	.17	.20	.40	.88	.16	.07			.04	.05				.11	.60	.98	.39	T.	.07	.90			1.08	T.		8.44	
Federal Point	St. Johns		.10		2.28	1.04	.17	.53	.72	.40	.08				.30	.40				.50	.01	.03	.27	.62	T.				.07	.06	.08	7.66	
Fenholloway	Fenholloway				.29		.36	.55	.38		4.10	2.60								.20	.25	.25	.28	4.00	.78							14.04	
Fernandina II	Coast				1.63	.45	5.76	.09	.19	.11	.03	.28	.02					.10		.03	.44	.12	.10	.12	.32			T.	.03	.33	.45	10.60	
Fort Meade	Peace Creek				T.	.15	1.15	1.02	2.21	.36	.08	.20	T.	1.27	.11				.27	.55	1.00	.06	.06	.12	.30					1.50		10.41	
Fort Myers	Caloosahatchee				T.	.04	.05	.20	1.54	.88	T.	.01		1.13				.63	1.30	1.45	.87	.62	.34	T.								9.06	
Fort Pierce	Indian					T.	.45	.10	T.	.80										.40	.20	1.90	.10						.07	.76		3.95	
Gainesville II	Lake		.05		.07	.03	1.67	.31	.51	.30	.24	1.03	.09						T.	1.15	1.35	2.00	.06	.08	.05	2.18						8.72	
Grasmere	do.	T.		.10	.05	.40		.17	1.18	.70	.06	.08		.26						.28	.35											10.84	
Hilliard	Nassau				.95	1.15	2.38	2.60	.30	.40										.28	.35											11.86	
Hypoluxo	Lake					.60	.57	.03		.12	.04									.20	.10	.48	.15		.42							4.36	
Inverness II	Withlacoochee	.62				.60	.57	.03		.12	.04									.42	.20	.58	.32	.16	.03	.08	2.23		.12	.02	.12	.73	11.12
Jacksonville	St. Johns				2.40	2.36	.11	.25	T.	T.	.39	T.							T.	.01	.09	.19	.87	.19						.82	.01	7.69	
Johnstown	Suwanee	T.			.97	.21	.22			.17	.35			.91	.57					.52	.71	.08	.18	.27	.31							7.03	
Key West	Coast	T.	T.		.02		.06	.10		.22	T.				.03					.29	.89	2.27						.42	.02		.01	4.35	
Kissimmee	Kissimmee	.65		.10	.10	.63	T.	1.20	.24	.58	.10	.10	.60	T.					T.	.98	.32	.25	.42							.22		7.59	
Lake City II	Suwanee			.25		.11	.19	.36	.15	.47	2.95	.12	T.		.10					1.60	.13	.28	.20	.70	.35	.30			.65	1.02		11.03	
Lucerne Park	Peace Creek		.01		.40	.10	.01	.92	1.94	.82	.06	.15	.20							.20	1.12	1.20	.35	.15	.10		.14					7.97	
Macclenny	St. Marys			.06	.65	.24	1.03	.18	.23	.12	.73	.26	.45	.03						.34	.72	.74		.39	.12				.38			6.67	
Madison II	Suwanee				.17	.50	.98	.85	.55	.51	2.12	1.05	.06								.18	.39	1.48	1.65	.09				.06	.03	T.	10.67	
Malabar	Indian				.11		T.	.91	.30		.56								T.	.14	.25	2.58	.15	.56								5.56	
Marlanna II	Apalachicola				1.06	.16	.40	.34	T.	.36	.30	.02	1.26	.41					1.70		.25	.07	2.50	.49		2.90	.12	.11	.71	.06		13.22	
Merritts Island	Indian				T.	.24		.16	.11	.11	.01	.06			.01				.81	.23	.16	2.61	.32	.17	.54							5.54	
Miami	Coast				T.	.10	.40				.03	.15			.40				.23	.10	.17	.40						.01	.10	.02		2.08	
Middleburg	St. Johns				1.83	1.86	1.97		.14	.10	.84	.13			.18				.45	.10												9.11	
Molino	Escambia			.20	.20	.40					5.80								2.00				.45									11.28	
Monticello	Aucilla				.17		.34	2.16	.56	1.07	4.50	1.35			.40					.45	.63	.05	1.30	2.50					.69			14.45	
Mount Pleasant	Apalachicola				.60	.45	.30	.05	T.	.22	.30	.30	1.40	.40						.40	.45	.63	.05	1.30	2.50				.40				

TABLE 2.—Daily precipitation for September, 1912. District No. 2—Continued.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Alabama—Contd.</b>																																	
Gadsden	Coosa.						.22								.55	.48				.74			.06	.50						.04		2.59	
Goodwater	do.											.12	.02		.10	.83	.03			.10				.50						.60		3.30	
Greensboro	Black Warrior															3.07	.38			.29			.07	.04						.03		3.94	
Greenville	Escambia.						.41								.82								.72			.70			.49		.20	4.85	
Hamilton	Tombigbee														1.03	.07	1.20					.50							.92			4.22	
Healing Springs	do.														1.03	.48	T.				.06		.07	.13			.17		.36		.18	3.48	
Highland Home.	Escambia.						.40	.12			.50	.10	.03	.03	.84	.03		.05	.45			.30	.32	.15			.30		.60			4.22	
Livingston	Tombigbee														.28	1.21	.53														.26	2.55	
Lock No. 4.	Coosa.			.15											.60	1.90							.62	.62								.46	
Mentone	do.					T.										.40				1.30											.65	2.35	
Millstead	Tallapoosa						.05				.05	.05	.15	.10	.50	.40	.05	.05	.40				.05	2.00				.05		1.10	.10	5.10	
Mobile	Coast.			T.		T.	.19					.03	.18	.07	.08			.92			.01	.07	1.23	T.	T.	.12	.63		.11	.14		5.76	
Montgomery	Alabama.					.69	.68				.05	.02	.01	.89	T.	T.		1.09		.02	T.	1.63	.03			.14		.90	.06	.05		6.31	
Newbern	Black Warrior.						.03								9.00	1.00				.22						.03	.15		.12			10.78	
Oneonta	do.								.27						.42	.65	.01			1.70			.08	.14	.05		.10		.06		.11	3.59	
Opelika	Tallapoosa			T.	.35		T.	.21			T.	.15	T.	.15	.15	.39	.16					.58		.55							.79	3.63	
Ozark	Coast.								T.			.15	.25	.15	.40	1.15	1.00				1.10			1.70				.15		.40		6.45	
Prattville	Alabama.	T.	.95			T.	.01	.08			T.	T.	.21	.06	.66		.60		.19			T.	1.02	.19			T.		1.58	.03		5.58	
Pushmataha	Tombigbee														1.65	.80				.70	.02	.01	.30				.20		.45	.02		4.15	
Robertsdale	Coast.			.06	.06	.06	.04				.14			.02	11.20	2.60	.04		.78	.26	1.46	.57	.17		.01	2.20	.03	.44	.61	.03		12.38	
Selma	Alabama.						T.	T.			T.				.76	1.24	.11			.20			T.	.80			.14	.06		.45		3.76	
Springhill	Coast.						.09								12.48	1.00	.12				1.00		T.	.30	.59		.11	.20	.22	.08	.07	20	4.68
Talladega	Coosa.														.43	1.17			.48				.40	.78			T.		.10	.30		3.66	
Tallassee	Tallapoosa			T.				.26			.02	.07	.04		.03	.53	.13	T.	.16	.08		.01	.07	2.48				.10		1.49	.07	5.54	
Thomasville	Tombigbee														.80	.93	T.			.40				.35	T.		.32		T.	2.00	T.	4.80	
Troy	Escambia.			T.			.03	.01			.14	.24	.30	.27	.46	1.39	.26			.64	.04	.40	.05	.31	1.62	T.		.27	.01	.71	2.56	.60	10.31
Tuscaloosa	Black Warrior.															1.06	.09	.04	T.	1.25			.10	.01			.12		T.	.18	T.	2.85	
Tuskegee	Tallapoosa						T.	.52	T.		.03	.36			.20	1.00	T.	.15	1.40				.55	.04		T.	T.	.81				5.94	
Union Springs	do.						.26					.41	.18		T.	.60				.36			T.	.50	.41			.09		.81	.42	5.04	
Uniontown	Black Warrior.														2.27	.23							.10						.45			3.51	
Valley Head	Coosa.														1.08	T.			1.64				.50				T.		T.			3.22	
Wetumpka	do.						.26								.54	.90								1.32							1.65		4.95
<b>Mississippi.</b>																																	
Aberdeen	Tombigbee							.21	T.		T.				1.83	.47	.13	T.	.09				1.36							.60		4.69	
Bay St. Louis.	Coast.			.12	.15	.03								.02	.08		.36		.30	.01	T.		.11		.03	.20	.01		.11	.71	.10	2.34	
Biloxi	do.			.21	.57	T.								T.	.31	.12			.17	.01	.04			.09	.01		.19	T.	.04	.02	.02	1.80	
Booneville	Tombigbee								T.						2.20		.50	T.	1.48											.13		4.31	
Brookhaven	Pearl				.03			T.							.02							.03		.05				.33			.02	0.48	
Columbia	do.						T.	.14	.06	T.					T.	.28	.04	T.		.67			1.50	.05			.12	.06		1.20	.98	5.10	
Columbus	Tombigbee								T.						1.48	.12	.05	T.	.08				.84				.10			.69	.52	4.00	
Crystal Springs	Pearl							.12							.08	.07						.04									.18	0.49	
Edinburg	do.						T.								.90	1.37							1.40				.06		.20	.05		3.98	
Enterprise	Chickasawhay.														.25	1.78	.15	1.05		.31			.66				.17			.12	.32	4.81	
Hazlehurst	Pearl														.04				.08	.06			.03							.39	.25	0.85	
Hickory	Chickasawhay.														1.39	1.05			1.02				.40							.56		4.42	
Jackson	Pearl					.20	.03							T.	.11			.20	.02			T.	.84			T.				.10	.04	1.54	
Lake	do.														.12	.70							.22				.55			.08		1.67	
Laurel	Leaf					.35									1.10			.03	1.67		T.	T.	.10	T.		.01	.12		2.40	.30	.05	6.13	
Leakesville	Chickasawhay.														2.25				.35						.20		.99			.26		4.05	
Louisville	Pearl														1.65	.69			.05				1.05						.78	.50		4.72	
McNeill	do.			.10		.16									1.83				.20							T.		.25		.12	.22	2.88	
Macon	Tombigbee							.23							T.	1.32	.21				T.			.74				.12		.15	.21	2.98	
Magnolia	Pearl					.44	.33								T.	.04	T.		.55			.01	.01			.61	.21			T.	.35	2.55	
Meridian	Chickasawhay.														1.07	.57		.32	.02			.02	.19	T.		.14	.04		.07	.08	T.	2.52	
Merrill	Pascagoula.	.02													2.20	.08	.02		.01	.06		.32		.04			.32	.03	.01	.16	.24	3.51	
Okolona	Tombigbee							.10							1.68	.30			.20	.35			.50									3.13	
Pascagoula	Coast.				.10	.32								1.36	.81	*	*	.26				.69						.27		.43		4.24	
Pearlington	Pearl			.20	.21	.20	.07		T.						.65			.40	1.24	.30	.40	.05	.70			.15	.27			.11		4.95	
Shubuta	Chickasawhay.														.78	1.03					.51		.16						.20	.22		3.27	
Tupelo	Tombigbee				.04										2.25		1.04	.10					.65									4.08	
Waynesboro	Chickasawhay.														.70	1.10	.60		.03	.66		T.	T.	T.			.35		T.	.42	.22	4.08	
Woodland	Tombigbee														1.60	.35			.35				.90	1.10								4.30	

\* Precipitation included in that of the next measurement.

TABLE 3.—Maximum and minimum temperatures at selected stations, September, 1912. District No. 2, South Atlantic and east Gulf States.

Date.	Virginia.								North Carolina.																Charleston, S. C.			
	Hot Springs.		Lynchburg.		Norfolk.		Richmond.		Charlotte.		Edenton.		Fayetteville.		Hatteras.		Newbern.		Raleigh.		Reidsville.		Salisbury.		Wilmington.		Max.	Min.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	85	54	96	75	90	71	96	72	96	72	98	73	100	74	87	75	95	65	99	74	101	72	99	70	96	77	100	79
2....	85	52	95	74	87	71	94	76	96	73	97	72	100	74	91	75	92	68	99	75	104	69	101	70	96	76	100	79
3....	86	50	96	69	80	70	89	69	95	72	90	69	98	72	80	74	92	68	95	73	101	71	100	72	91	76	95	80
4....	75	52	81	70	76	71	78	69	84	72	82	69	86	71	84	73	82	67	81	71	87	68	90	71	83	72	86	75
5....	80	52	86	70	85	73	89	72	84	70	87	72	87	71	86	75	84	67	84	72	89	71	94	71	85	73	84	72
6....	80	49	95	69	91	74	95	71	90	71	94	72	90	72	87	76	92	67	91	72	96	71	94	72	86	74	81	72
7....	84	50	93	69	90	74	94	73	92	71	95	72	90	69	88	77	91	66	92	71	97	67	94	71	81	73	83	76
8....	84	44	88	64	86	74	92	68	88	67	93	71	91	71	84	74	89	67	89	69	92	65	95	65	85	72	82	76
9....	85	45	90	63	88	72	93	62	88	68	89	67	91	67	85	74	85	66	89	67	92	66	93	66	79	71	80	75
10....	84	41	92	61	90	70	94	62	85	68	90	63	89	69	85	74	88	66	88	66	93	63	90	60	83	71	80	72
11....	84	41	94	61	88	70	95	65	82	68	90	68	77	71	84	74	83	67	85	71	92	69	91	62	76	74	83	73
12....	80	46	78	69	74	66	78	62	90	66	80	58	88	68	83	74	85	65	79	69	86	68	92	63	87	69	83	76
13....	74	50	69	62	79	64	81	58	78	66	80	57	87	67	81	72	87	63	82	67	75	61	80	66	82	68	83	77
14....	79	49	84	62	86	70	88	66	87	64	92	66	90	68	84	76	91	64	88	67	89	60	89	67	86	71	84	78
15....	81	51	89	69	88	72	90	72	87	73	92	69	93	71	83	75	89	68	90	73	93	70	90	64	87	75	88	78
16....	74	51	87	70	84	70	88	67	88	71	89	60	94	73	87	75	92	69	90	73	92	69	94	68	90	75	92	76
17....	71	41	83	65	80	69	82	63	89	68	84	65	89	71	80	74	85	65	83	70	88	68	92	69	81	73	87	77
18....	72	51	78	65	86	68	82	67	89	72	90	66	93	71	83	75	92	66	90	69	91	71	93	73	87	74	88	78
19....	69	44	76	62	82	69	71	62	83	65	89	69	88	72	85	74	91	69	77	69	82	67	85	68	82	68	87	68
20....	72	31	77	52	75	66	78	59	81	59	83	67	86	64	79	71	82	60	84	62	84	54	85	51	80	66	86	70
21....	72	33	79	51	78	61	82	56	83	58	82	54	87	61	80	70	85	59	80	60	84	54	80	59	80	66	81	72
22....	72	44	78	57	76	65	78	61	79	63	79	58	86	64	79	72	82	60	80	61	83	56	80	59	81	65	81	72
23....	64	46	67	61	76	65	70	62	72	66	72	64	74	68	80	74	74	64	71	65	74	63	80	69	81	69	83	74
24....	70	46	73	63	76	69	78	66	81	69	84	67	84	70	80	72	89	64	80	70	79	67	92	65	85	72	87	76
25....	75	40	83	61	75	67	74	62	88	66	84	70	89	68	83	71	86	66	86	65	89	62	90	65	86	68	88	73
26....	70	45	67	62	74	66	71	61	80	62	79	65	74	63	77	71	79	62	69	63	77	62	85	63	79	65	80	73
27....	66	42	65	59	76	62	66	57	67	61	78	64	77	63	77	70	79	61	71	59	66	58	70	61	80	65	81	68
28....	62	29	66	48	68	62	69	50	70	57	73	60	75	59	70	67	74	56	72	58	71	53	79	55	73	61	77	68
29....	61	35	76	52	77	64	74	54	75	57	78	60	79	59	75	69	74	57	77	59	78	56	70	59	74	63	75	66
30....	57	26	63	47	64	50	63	45	67	55	70	53	69	58	71	61	65	55	66	53	67	50	74	48	68	55	72	64
Mns..	75.1	44.3	81.5	62.7	80.7	67.8	82.4	63.6	83.8	66.3	85.4	65.7	86.7	68.0	81.9	72.8	85.1	64.2	83.6	67.1	86.3	64.0	88.0	65.1	83.0	69.8	84.6	73.8

Date.	South Carolina.												Georgia.															
	Columbia.		Conway. §§		Ferguson. §§		Georgetown.		Green-ville. §§		Newberry.		Society Hill.		Albany. §§		Atlanta.		Augusta.		Dahlo-nega.		Macon.		Rome. §§		Savannah.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	99	78	101	75	102	74	98	74	100	67	102	75	95	74	98	74	93	74	97	75	91	69	96	73	95	68	97	77
2....	99	75	101	71	100	74	98	75	97	67	102	70	93	73	98	73	92	74	98	75	90	67	97	72	96	69	100	78
3....	97	74	98	71	99	75	93	75	98	68	98	74	92	72	98	74	93	74	98	76	92	72	97	74	95	68	97	78
4....	87	76	94	73	89	76	94	75	89	67	89	73	85	72	100	75	93	74	91	74	89	69	97	73	98	69	89	75
5....	88	71	98	.....	84	73	85	74	87	67	90	69	86	71	92	74	88	72	88	74	85	69	88	74	92	69	86	72
6....	85	73	86	74	84	71	86	72	92	68	84	74	86	71	92	73	88	71	86	73	84	68	86	73	92	70	79	70
7....	89	72	83	71	86	71	88	74	93	67	89	71	86	71	85	73	88	70	89	72	88	64	86	73	97	68	84	70
8....	88	69	87	71	85	70	86	70	92	65	90	68	84	68	88	72	90	69	87	72	86	63	86	70	93	68	82	73
9....	87	70	84	70	86	69	86	74	91	66	89	70	86	69	86	73	87	69	88	72	84	68	84	71	94	68	81	73
10....	85	71	83	71	84	74	85	72	86	67	87	70	84	70	83	73	78	69	81	70	80	69	81	72	87	69	82	70
11....	83	70	84	70	86	70	82	74	88	68	84	71	78	69	77	73	78	69	86	70	81	68	79	72	90	73	82	73
12....	88	70	92	69	88	72	89	69	90	63	89	68	85	68	85	73	85	68	88	70	86	64	86	71	94	68	85	74
13....	87	72	89	70	88	70	91	74	85	64	89	70	83	71	86	72	84	70	88	72	80	67	88	73	93	68	86	75
14....	89	72	90	70	89	72	91	74	83	64	83	69	85	72	88	72	83	70	86	75	80	67	88	73	89	72	86	77
15....	91	73	92	73	90	72	89	74	84	64	91	73	88	71	92	72	81	69	90	76	81	69	88	72	87	71	92	77
16....	93	73	95	72	92	68	91	75	87	63	93	71	89	69	95	71	88	70	91	74	87	67	91	72	92	71	93	74
17....	92	72	95	72	95	72	91	74	88	64	94	69	87	72	96	71	88	68	91	71	86	64	92	70	91	65	93	76
18....	92	74	92	74	92	73	91	77	87	66	93	72	89	72	96	70	82	69	90	74	82	65	89	70	79	66	92	74
19....	87	70	.....	72	88	73	88	73	86	66	86	70	88	57	96	69	80	64	85	67	77	60	84	65	84	63	85	70
20....	86	60	89	.....	94	64																						

TABLE 3.—Maximum and minimum temperatures at selected stations, September, 1912. District No. 2—Continued.

Date.	Georgia.										Florida.																	
	Thomas-ville.		Way-cross. §§		West Point. §§		Avon Park.		Fort Myers.		Gainesville. §§		Jacksonville.		Key West.		Miami.		Ocala.		Orlando.		Pensacola.		Tallahassee. §§		Tampa.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	97	74	100	72	95	71	92	72	91	74	95	70	98	77	90	80	89	74	.....	.....	94	74	88	77	91	75	95	76
2....	98	74	102	74	96	71	94	72	92	74	97	72	98	78	88	79	89	76	97	71	95	74	91	75	93	74	96	76
3....	99	74	101	74	96	71	95	78	93	74	97	79	99	78	90	80	90	75	97	72	97	75	92	77	94	76	92	72
4....	98	72	100	73	99	70	94	78	92	74	96	71	96	76	91	77	90	75	93	79	95	75	97	79	93	76	96	75
5....	91	72	92	74	90	70	91	76	92	74	90	74	88	69	89	77	90	75	92	74	87	75	96	75	90	75	88	72
6....	89	71	88	73	89	71	91	73	85	72	89	70	86	71	88	81	89	75	91	70	91	72	88	74	86	70	88	73
7....	87	73	88	72	90	70	90	73	85	72	86	71	86	73	86	76	87	70	85	71	89	73	89	74	82	72	87	73
8....	85	73	88	70	90	68	86	72	82	71	83	73	84	73	88	77	88	77	82	72	80	75	86	73	82	72	80	71
9....	83	72	82	72	87	69	83	70	85	71	78	71	82	73	88	77	88	80	75	72	79	74	89	73	82	71	80	71
10....	77	73	86	73	83	72	85	69	85	74	80	72	83	75	89	82	90	80	75	72	81	75	90	74	78	73	78	70
11....	77	73	83	73	78	71	90	72	89	74	77	71	84	73	88	79	90	76	76	74	89	73	86	74	77	74	84	75
12....	83	73	88	73	86	71	93	70	83	75	79	72	87	76	87	80	90	74	76	73	85	73	85	74	78	72	79	71
13....	88	73	92	73	87	70	91	72	87	75	90	76	89	76	88	81	90	80	83	72	90	72	80	74	82	73	88	74
14....	88	72	92	74	84	73	92	74	90	74	90	72	89	76	88	81	89	76	87	73	89	75	80	74	84	74	90	74
15....	92	73	94	72	85	70	89	73	87	71	92	71	91	76	87	76	87	74	92	72	90	73	84	75	86	71	91	74
16....	93	71	95	72	90	69	90	72	88	74	91	71	91	75	87	76	89	74	87	70	90	73	87	74	87	71	91	74
17....	94	72	97	72	91	68	94	74	89	72	92	71	93	77	88	78	89	80	95	70	90	77	86	75	87	72	90	75
18....	92	69	95	71	87	71	88	72	87	70	93	72	92	73	88	79	88	75	94	71	88	72	84	69	86	71	88	73
19....	81	69	88	69	83	69	90	70	85	70	88	71	89	72	86	72	87	71	92	71	89	70	82	70	81	68	88	73
20....	86	68	90	71	85	58	86	70	86	71	88	69	87	73	84	72	89	76	88	70	86	72	83	73	83	70	86	71
21....	81	70	87	70	83	62	85	71	84	70	83	69	82	73	86	72	88	72	83	70	84	71	83	69	74	71	84	72
22....	74	71	83	72	76	71	88	72	86	72	84	69	86	72	87	81	87	77	87	70	87	71	76	71	74	71	86	72
23....	82	71	80	72	76	66	88	74	87	76	83	71	84	74	87	81	89	78	85	72	88	75	80	70	80	69	88	76
24....	84	72	84	73	84	67	91	74	88	75	88	72	89	76	88	80	90	75	89	74	89	75	82	70	82	72	87	78
25....	89	69	91	70	89	66	90	72	88	75	90	70	90	74	88	80	90	73	91	71	90	73	82	72	84	70	90	75
26....	89	69	93	69	82	66	89	74	89	74	91	70	87	74	89	78	88	76	91	72	89	74	80	70	85	71	89	74
27....	91	69	92	70	80	65	90	74	89	74	90	70	86	72	87	79	88	80	84	71	88	74	84	70	85	70	91	74
28....	77	69	81	69	69	66	93	72	89	73	85	70	83	72	87	80	90	80	91	71	89	73	77	70	78	68	90	74
29....	75	68	75	69	69	64	93	68	88	75	89	70	85	70	88	79	90	77	86	73	89	73	80	72	77	71	91	75
30....	73	68	73	68	78	62	89	71	89	74	88	71	80	74	88	78	90	72	86	71	87	73	77	69	75	67	91	72
Mns..	86.4	71.2	89.3	71.6	85.2	68.3	89.7	72.4	87.7	73.1	88.1	71.3	88.1	73.9	87.8	78.3	88.9	75.8	87.2	71.9	88.3	73.5	84.8	72.9	83.2	71.7	88.1	73.5

Date.	Alabama.										Mississippi.													
	Anniston.		Bermuda.		Birmingham.		Eufaula. §§		Mobile.		Montgomery.		Tuscaloosa. §§		Uniontown.		Columbus. §§		Jackson.		Laurel.		Meridian.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	94	69	95	71	92	74	91	69	91	75	95	75	99	73	94	75	98	73	96	72	98	70	93	73
2....	93	69	95	72	92	73	92	70	94	74	95	76	99	72	97	74	97	72	96	71	98	68	92	73
3....	94	68	96	71	93	71	93	71	96	76	96	76	99	71	98	75	97	70	96	70	99	68	94	71
4....	96	68	97	71	94	71	94	70	97	77	98	75	99	71	100	74	100	71	97	71	99	69	94	71
5....	92	70	95	72	92	74	90	71	96	77	92	71	97	72	95	73	98	72	98	71	101	70	94	72
6....	92	72	92	71	91	72	88	68	93	75	91	70	97	73	94	74	99	73	96	73	100	71	92	73
7....	92	67	89	68	92	72	83	70	91	74	90	69	96	72	94	72	98	71	96	71	97	70	92	71
8....	92	67	89	69	92	72	85	69	89	74	90	71	96	72	93	72	98	71	97	72	97	69	92	70
9....	91	68	91	68	92	73	86	68	92	74	90	71	94	71	93	71	97	71	97	72	98	69	92	71
10....	84	74	87	68	83	71	82	68	89	75	84	74	88	72	93	71	93	71	95	71	96	70	89	72
11....	87	73	86	72	87	71	79	69	87	73	84	72	93	71	92	72	84	70	94	70	94	70	88	71
12....	90	70	88	72	91	70	83	69	86	75	88	73	96	70	92	71	94	69	93	70	96	71	91	71
13....	89	72	84	72	89	71	84	69	84	75	86	72	93	71	92	70	96	67	93	66	92	71	88	71
14....	83	70	83	71	78	71	80	70	82	72	77	70	78	73	90	72	76	66	88	74	85	71	79	70
15....	84	69	89	71	75	71	85	68	84	74	86	72	80	70	90	72	91	72	97	76	93	75	90	70
16....	90	69	90	67	89	69	85	66	88	70	89	69	93	70	92	68	90	69	91	70	92	68	87	67
17....	89	64	80	69	88	67	87	67	86	74	91	70	91	68	92	68	91	67	92	68	93	69	90	69
18....	77	68	87	68	75	66	84	68	86	68	86	68	78	68	90	68	82	68	89	71	87	66	76	65
19....	81	57	83	68	80	60	80	64	83	70	85	67	84	64	89	65	84	58	86	57	87	64	63	61
20....	87	55	88	63	84	60	81	59	84	73	86	61	88	59	87	60	90	57	93	60	91	63	85	61
21....	84	66	83	69	81	68	79	64	83	72	81	69	85	59	84	65	88	57	92	68	89	69	83	69
22....	74	66	75	69	76	68	78	67	76	72	76	70	78	66	85	67	76	65	80	66	82	69	73	65
23....	78	66	79	69	82	65	75	68	79	70	81	67	85	66	90	65	79	61						

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT No. 3, OHIO VALLEY.

PROP. FERDINAND J. WALZ, District Editor.

## GENERAL SUMMARY.

The unseasonably warm weather which set in the latter part of August continued during practically the entire first half of September. The first 10 days of the month were remarkably hot and oppressive, the average temperature of which ranks among the highest for any decade in September on record in the Ohio Valley. Also it was not only one of the warmest long periods of the summer, but at many places the temperature registered at one time or another the highest experienced during the entire summer. Maximum temperatures were 90° or over practically every day, while at a few places they were 100° and over on several days. The last four or five days of the month were unseasonably cold over the greater portion of the district, with frosts and freezing temperatures reported over the more northerly sections and the elevated regions of the Appalachians. The frosts occasioned little damage, however, and the month as a whole was remarkably favorable, there being as a rule ample rainfall, while the warm weather during the first half of the month was especially advantageous for ripening and maturing the fall crops which had been delayed in planting and maturing on account of the cold, wet weather of the spring and early summer. Heavy rains over western Pennsylvania and the bordering sections of West Virginia and Ohio about the 1st-2d caused considerable damage, otherwise the month, except for occasional local damage from thunderstorms, was remarkably free from any stress of weather.

High-pressure areas largely dominated, there being but three barometric depressions which in their passage eastward materially affected the weather conditions over the district. These occurred about the 15th, 17th-18th, and the 20th-21st.

The following table summarizes the chief features of meteorological interest for the several sections of the district.

Portions of States included in the Ohio River Basin.	Temperature.				Precipitation.					
	Average.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest monthly.	Least monthly.	Greatest in 24 hours.	Average number of days.
New York.....	63.1	+3.8	91	20	4.60	+1.87	5.23	3.91	1.92	13
Pennsylvania.....	66.3	+2.5	95	29	5.20	+2.49	11.43	2.47	3.04	12
Maryland.....	63.8	+2.7	89	30	6.15	+3.66	7.10	5.54	3.55	11
West Virginia.....	68.7	+2.1	98	31	3.67	+0.80	6.87	1.60	2.72	8
Ohio.....	67.7	+1.6	99	29	3.04	+0.57	5.91	1.06	3.50	8
Indiana.....	68.6	+1.3	101	29	3.37	+0.14	5.79	1.35	3.96	7
Illinois.....	69.4	+0.6	101	30	3.18	+0.10	5.64	1.26	3.44	7
Kentucky.....	71.0	+0.5	103	33	2.80	+0.22	4.95	1.20	2.51	6
Tennessee.....	73.1	+2.7	100	37	3.48	+0.33	6.85	1.70	4.31	6
Alabama.....	74.2	+1.4	98	46	3.54	+0.28	4.58	2.34	3.00	6
Georgia.....	.....	.....	91	46	.....	.....	.....	.....	1.49	12
North Carolina.....	68.1	+4.0	95	34	5.07	+1.25	8.61	3.00	4.67	12
Virginia.....	65.5	+1.2	91	27	5.16	+1.93	7.87	3.37	3.70	8

## TEMPERATURE.

Temperature averaged above normal in nearly all parts of the district, the excess ranging from +1° to +5°. During the first half of the month the mean daily temperatures over the district ranged from 5° to 14° above normal, except that about the 12th-13th they were slightly below normal over the north central portion. Over the more southerly portions of the district the temperature was above normal during practically the entire month except for three or four days near the close. There were two marked cool periods, viz, 18th-20th, when mean temperatures were 3° to 9° below normal with minimum temperatures in the 40's; and the 26th-30th, when minimum temperatures registered in the 30's and 40's and the means were 5° to 12° below normal. The highest temperature registered in the district was 103°, at Earlington, Ky., on the 10th, and the lowest 27°, at Lebanon, Va., on the 20th. Freezing temperature was reached near the close of the month at a number of places in all the States north of the Ohio River and in West Virginia and western Pennsylvania.

A remarkable record of high temperature for September occurred during the first 10 days over the immediate lower Ohio Valley, especially in western Kentucky, where at several stations the daily maximum temperatures registered during that period, ranged from 97° to 103°. At Earlington, Ky., the temperature reached 100° every day of the 10 except one, and on that day it was 99°.

## PRECIPITATION.

Precipitation averaged near normal over much of the district. There was a considerable excess, however, in the western portions of Pennsylvania and Maryland, where the monthly amounts ranged from 6.0 to 11.5 inches, due to the heavy rains which occurred in the early part of the month; also there were a few limited areas, notably in central Illinois, in western Kentucky, the Licking Valley, southeastern Ohio, and extreme western West Virginia, where there was a marked deficiency, the monthly amounts being 2 inches or less. Over the rest of the district monthly amounts ranged generally between 3 and 5 inches.

Heavy rains fell over the northwestern portion of the district during the first week of the month, but generally over the rest of the district rains were decidedly scattered, local and for the most part light during the entire first two weeks, and, except in Ohio, where the rains were more frequent and copious, only an occasional shower here and there gave rainfall in any adequate amount. During the last half of the month there were three periods with general and abundant rain, viz, 14th-18th, 21st-23d, and the 26th.

A number of excessive 24-hour rainfalls occurred at various times during the month. Those worthy of special note were: 1st-2d, 3.42 inches at Green Hill and

3.50 inches at Millport, Ohio; 23d, 4.67 inches at Rock House, N. C., and on the 25th, 3.96 inches at Princeton, Ind.

#### STORMS OF THE 1ST-2D IN THE UPPER OHIO VALLEY.

During the night of the 1st-2d, severe storms swept over a portion of western Pennsylvania, the Panhandle of West Virginia, and several counties in eastern Ohio, attended by high winds, torrential downpours of rain, and terrific discharges of lightning. As a result of the excessive rainfall small streams soon became raging torrents, causing vast destruction to property and stock, and the drowning of about 40 people. Of these, 18 perished at Colliers and 1 at Wellsburg, W. Va., 6 at Cherry Valley, 4 at Burgettstown, 3 at Avella, 3 at Canonsburg, and 1 at Woodrow, Pa., while 1 person was killed by lightning at Pittsburgh, Pa., and another fatally injured at Zoar, Ohio. Salineville, Ohio, suffered severely from the storm, the streets being covered with débris, but fortunately no loss of life occurred, although there were many narrow escapes. The value of property destroyed by lightning and flood is estimated to be between one and two millions of dollars.

The Chartiers Valley, from Washington, Pa., to McKees Rock, Pa., where the little stream empties into the Ohio River, was one stretch of devastation, thousands of acres of growing corn being destroyed and thousands of tons of hay carried away by the torrent. The damage to railroads and manufacturing plants was heavy throughout the inflicted district. A train ran into a washout near Rockdale, Pa., and plunged over a high embankment into the flooded creek. The fireman was killed and the

engineer and several other trainmen had narrow escapes, and freight valued at half a million dollars was destroyed. Prompt action on the part of the Buffalo-Pittsburgh Coal Co. in spreading warnings saved the lives of several hundred people at Cherry Valley and Canonsburg, Pa. This disaster was followed by a second flood in portions of Allegheny and Washington Counties, Pa., from a series of cloudbursts on the 3d, and which also did great damage to property and railroads and caused the loss of one human life.

#### MISCELLANEOUS.

*September 7.*—A factory at Springfield, Ohio, was struck by lightning and set on fire, causing a loss of \$60,000.

*September 17.*—A severe storm near Adairville, Ky., destroyed several tobacco barns, Moses Fisher being killed by the collapse of one of the barns. Wind, rain, and hailstorms did great damage to corn and tobacco crops and buildings in Todd County, Ky. A tornado swept over the northeastern corner of Montgomery County, Tenn., and the southeastern corner of Todd County, Ky., causing the destruction of 5 residences and 6 tobacco barns. The loss in growing crops, poultry, and live stock is estimated at more than \$75,000.

*September 18.*—Rain and hailstorms did much damage to crops, especially tobacco, in Henderson and Daviess Counties, Ky. Near Owensboro, Miss Myrtle Johnson was killed and her brother severely shocked by lightning.

*September 28.*—Two men were struck by lightning near Granville, Jackson County, Tenn., one being killed and the other severely shocked.

TABLE 1.—Climatological data for September, 1912. District No. 3, Ohio Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>New York.</b>																				
Allegany	Cattaraugus	1,441	6	63.2	.....	91	10	31	30	35	3.91	.....	0.69	0	14	7	9	14	nw.	C. E. Whitney.
Bolivar	Allegany	1,800	18	63.0	+ 3.8	90	10	29	30	37	4.94	+ 1.87	1.20	0	12	9	10	11	w.	Dr. C. F. Hoffman.
Olean	Cattaraugus	1,402	4	.....	.....	.....	.....	.....	.....	.....	5.23	.....	1.92	0	12	.....	.....	.....	w.	John W. Alles.
<b>Pennsylvania.</b>																				
Aleppo	Green	1,135	11	67.0	+ 1.9	91	10†	29	30	40	4.35	+ 1.93	2.25	0	7	17	2	11	sw.	J. S. Hinerman.
Baldwin	Butler	1,404	6	65.0	.....	89	10	33	30†	32	4.06	.....	1.10	0	10	13	10	7	sw.	S. H. Templeton.
Beaver Dam	Beaver	674	18	.....	.....	.....	.....	.....	.....	.....	5.29	+ 2.79	3.04	0	11	5	7	18	sw.	U. S. Engineer.
Brookville	Jefferson	1,173	21	63.0	.....	94	11	30	29†	43	3.97	+ 0.70	1.01	0	12	.....	.....	.....	w.	H. C. Bartholomew.
Claysville	Washington	1,127	8	69.2	.....	93	10	30	30	44	3.87	.....	0.68	0	12	20	6	4	w.	E. T. Buchanan.
Confluence	Somerset	1,352	28	.....	.....	.....	.....	.....	.....	.....	7.11	+ 4.25	2.05	0	14	10	4	16	w.	Grant Pyle.
Franklin	Venango	955	38	66.4	+ 2.7	95	11	33	30	33	4.04	+ 0.32	0.83	0	15	17	0	13	sw.	F. E. Dixon.
Freeport	Armstrong	772	39	.....	.....	.....	.....	.....	.....	.....	4.05	+ 1.35	1.57	0	12	7	6	17	.....	Mrs. Anna R. Burtner.
Greensboro	Green	768	23	.....	.....	.....	.....	.....	.....	.....	6.66	+ 3.82	2.10	0	13	.....	.....	.....	sw.	James G. Cramer.
Greenville	Mercer	950	16	65.4	+ 3.4	94	10	32	30	42	3.86	+ 0.59	0.85	0	11	21	5	4	nw.	A. M. Orr.
Indiana	Indiana	1,350	15	67.2	+ 3.0	93	10	33	30	42	5.29	+ 2.79	3.04	0	15	14	11	5	s.	R. W. Wehrle.
Johnstown	Cambria	1,184	24	68.6	+ 3.2	94	10	38	30	35	6.12	+ 2.87	1.78	0	11	11	16	3	s.	E. C. Lorentz.
Lock No. 4	Washington	718	26	.....	.....	.....	.....	.....	.....	.....	5.52	+ 2.82	1.38	0	11	4	12	14	s.	R. T. McGowan.
Lycippus	Westmoreland	1,420	20	66.3	- 0.5	83	10	37	30	24	6.87	+ 4.23	2.19	0	12	.....	.....	.....	.....	Murray Forbes.
Pittsburgh	Allegheny	842	42	68.6	+ 2.5	90	10	38	30	28	2.89	+ 0.41	1.39	0	13	14	8	8	w.	U. S. Weather Bureau.
Saegertown	Crawford	1,116	21	64.4	+ 2.5	89	10†	31	30	35	2.47	- 1.39	1.20	0	15	7	7	16	nw.	J. G. Apple.
Sharon	Mercer	940	1	67.4	.....	92	10	33	30	35	2.87	.....	0.96	0	10	18	0	12	sw.	Norman S. Powell.
Skidmore	Lawrence	1,000	8	65.2	.....	92	10	31	30	39	4.45	.....	1.25	0	7	20	3	7	s.	W. H. Stoner.
Somerset	Somerset	2,250	56	64.4	+ 3.8	86	5	29	30	37	11.43	+ 8.32	1.51	0	15	2	18	10	nw.	W. M. Schrock.
Uniontown	Fayette	999	24	68.4	+ 2.4	90	2†	39	30†	35	6.41	+ 3.32	1.05	0	13	15	8	7	w.	William Hunt.
Warren	Warren	1,137	23	64.7	+ 2.8	87	10	30	30	33	5.38	+ 1.60	2.00	0	9	10	1	19	sw.	Anna Simpson.
<b>Maryland.</b>																				
Deer Park	Garrett	2,457	18	62.8	+ 2.5	86	14	30	28†	41	7.10	+ 4.81	3.55	0	10	.....	.....	.....	.....	S. P. Specht.
Grantsville	do	2,351	18	64.4	+ 2.7	89	10	32	28	37	5.54	+ 3.13	1.20	0	11	.....	.....	.....	s.	J. S. Miller.
Oakland	do	2,461	12	64.2	+ 2.8	86*	5†	30*	30	39*	5.81	+ 3.03	1.79	0	12	13	12	5	e.	R. E. Weber.
<b>West Virginia.</b>																				
Bancroft	Putnam	574	10	70.7	+ 0.8	92	13	42	27	38	4.09	+ 1.42	0.80	0	7	16	0	14	.....	R. E. Dent.
Beckley	Raleigh	2,440	12	64.6	+ 0.9	87	2†	38	27†	35	4.32	+ 2.27	1.88	0	4	23	1	6	w.	John A. Ewart.
Bens Run	Pleasants	622	10	70.4	+ 1.6	85	10	42	27	35	1.63	- 0.75	0.55	0	5	23	4	3	.....	J. D. Riggs.
Bluefield	Mercer	2,563	17	68.1	+ 1.9	89	9	42	29	32	2.79	- 0.10	1.00	0	8	17	5	8	.....	Norfolk & Western Ry.
Buckhannon	Upshur	1,472	21	66.3	+ 1.4	87	1†	38	28†	40	4.63	+ 1.55	1.35	0	8	25	1	4	.....	H. A. Darnall.
Cairo	Ritchie	667	10	71.0	+ 3.3	96	8	36	30	46	4.83	+ 0.63	0.82	0	6	2	21	7	sw.	Van A. Zevilly.
Central Station	Doddridge	900	11	71.6†	.....	91	1†	43	28†	40	4.06	+ 1.05	.....	0	.....	.....	.....	.....	.....	G. W. Sherwood.
Charleston	Kanawha	598	24	72.0	+ 1.1	91	1	43	28†	28	2.41	- 0.45	0.79	0	7	20	5	5	w.	R. C. Howes.
Creston	Wirt	612	11	69.6	+ 1.8	92	1†	39	30	37	2.47	- 0.01	0.88	0	9	15	8	7	sw.	J. M. Reed.
Cuba	Jackson	544	10	69.2	+ 1.9	94	9†	33	30	41	1.93	- 0.23	0.86	0	5	14	15	1	w.	C. T. Perry.
Doane	Wayne	.....	6	71.0	.....	98	8	42	29†	39	1.97	.....	0.68	0	5	20	6	4	nw.	L. A. Smith.
Elkhorn	McDowell	1,933	19	67.6	+ 1.1	87	7	40	20	35	3.65	+ 0.85	1.35	0	6	15	13	2	sw.	J. J. Lincoln.
Elkins	Randolph	1,940	13	66.9	+ 4.9	90	10	36	30	41	4.18	+ 1.31	1.56	0	15	14	8	8	nw.	U. S. Weather Bureau.
Fairmont	Marion	879	18	70.8	.....	97	10	40	30	43	4.41	+ 1.82	1.48	0	13	22	2	6	n.	F. P. Hall.
Glenville	Gilmer	738	22	72.2	+ 4.6	98	7	39	30	46	4.26	+ 0.91	1.56	0	8	24	4	2	w.	Joe N. Craddock.
Grafton	Taylor	985	18	70.4	+ 3.8	96	10	40	28	43	5.02	+ 2.18	1.42	0	13	18	6	6	w.	Joseph Gerken.
Green Sulphur Springs	Summers	1,600	16	68.2	+ 1.8	93	7†	40	28†	40	2.46	+ 0.29	1.42	0	8	11	12	7	w.	Arthur George.
Hinton	do	1,400	21	71.6	+ 3.3	96	10	44	27	36	3.16	+ 0.18	1.12	0	8	13	2	15	sw.	J. B. Lavender, C. E.
Holcomb	Nicholas	.....	1	68.0*	+ 1.6	92	10*	39	28	39*	4.54	.....	.....	0	7	18	5	7	.....	R. E. Ferguson.
Huntington	Cabell	510	17	69.2	+ 0.2	90	2†	44	29†	29	3.04	+ 0.77	1.02	0	6	19	0	11	w.	L. H. Hutchinson.
Lewisburg	Greenbrier	2,200	11	66.8	+ 1.8	88	7†	40	28†	35	4.03	+ 1.32	2.29	0	5	23	5	2	nw.	Geo. T. Argabrite.
Logan	Logan	665	10	71.8	+ 2.4	92	1	46	29	30	2.60	- 0.63	1.10	0	9	23	5	2	se.	Dr. J. E. McDonald.
Lost Creek	Harrison	1,033	15	67.0	+ 1.4	92	9†	33	30	43	4.07	+ 1.09	1.60	0	7	22	5	3	w.	Allen Smith.
Madison	Boone	704	8	69.7	.....	92	1†	43	30	39	3.11	.....	1.20	0	9	19*	7*	2*	.....	S. E. Bradley.
Mannington	Marion	967	11	67.5	+ 1.2	90	1†	34	30	38	5.57	+ 1.17	1.53	0	15	20	2	8	sw.	Jas. A. Morgan.
Marlington	Pocahontas	2,169	17	65.8	+ 3.0	90	10	36	30	38	4.56	+ 1.57	2.62	0	7	14	8	4	.....	C. J. McCarty.
Morgantown	Monongalia	1,250	36	69.6	+ 1.5	94	10	46	30	34	3.26	+ 0.09	1.25	0	9	11	15	4	s.	Horace Atwood.
Moundsville	Marshall	640	10	71.1	+ 3.4	95	2†	39	28†	41	2.71	+ 0.14	0.83	0	8	20	1	9	sw.	M. L. Brown.
New Cumberland	Hancock	987	14	66.7	+ 0.8	94	1	35	28†	35	1.13	- 1.55	1.00	0	6	12	5	13	s.	Frank S. Evans.
New Martinsville	Wetzel	634	18	71.4	+ 2.5	97	10	39	30	38	2.80	+ 0.17	0.90	0	4	20	7	3	s.	Wm. Ankrum.
Nuttallburg	Fayette	2,252	18	62.8	.....	84	2	40	28	23	3.34	+ 0.91	1.87	0	4	15	4	2	.....	Miss Donna Tully.
Parkersburg	Wood	638	25	70.2	+ 4.2	93	10	41	30	33	1.60	- 1.12	0.60	0	9	18	5	7	n.	U. S. Weather Bureau.
Parsons	Tucker	1,662	12	66.6	+ 2.9	90	10	37	30	36	5.61	+ 2.56	1.95	0	10	18	7	5	.....	J. W. Swisher.
Philippi	Barbour	1,192	18	68.6	+ 2.9	92	10	38	30	42	6.64	+ 3.51	1.31	0	18	17	11	2	w.	J. D. Dadisman.
Pickens	Randolph	2,785	20	64.8	+ 2.8	92	10	34	30	36	6.43	+ 2.84	1.87	0	10	20	3	7	w.	Dr. J. L. Cunningham.
Point Pleasant	Mason	553	21	71.0	+ 1.1	96	9†	37	30	42	1.68	- 0.58	0.82	0	8	18	5	7	se.	W. D. Holmes.
Powellton	Fayette	904	14	70.6	+ 3.6	94	10†	42	27	42	4.53	+ 1.85	2.72	0	8	15	10	5	.....	Morris Hansford.
Princeton	Mercer	2,469	10	63.0	+ 0.9	81	7	39	28	29	3.10	- 0.86	1.25	0	4	18	8	4	w.	H. Scott.
Robertsburg	Putnam	574	11	70.4	+ 1.5	97	9	40	27	41	1.76	- 0.73	0.55	0	7	23	1	6	.....	E. P. Turley.
Ryan	Roane	639	10	68.5	+ 1.5	93	9†	36	30	41	2.09	- 0.31	0.43	0	8	20	4	6	.....	Wm. F. Ryan.
Smithfield	Wetzel	919	8	68.3	.....	93	2	39	28	35	4.93	.....	1.25	0	10	17	3	10		

TABLE 1.—Climatological data for September, 1912. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Ohio—Continued.</b>																				
Camp Dennison.....	Hamilton.....	570	19	69.3	+ 0.1	96	10	34	30	38	2.56	+ 0.61	0.75	0	6	17	10	3	n.	Henry F. Pinkvoss.
Canal Dover.....	Tuscarawas.....	884	19	66.7	+ 2.7	92	1	33	30	34	1.92	+ 0.72	0.95	0	6	12	14	4	sw.	Ed. S. Slingluff.
Canton.....	Stark.....	1,089	29	66.5	+ 2.5	94	10	33	30	37	3.30	+ 0.45	1.13	0	12	17	5	8	sw.	Carl H. Meyer.
Cardington.....	Morrow.....	1,010	17	69.0 <sup>b</sup>	+ 3.7	99 <sup>b</sup>	5	31 <sup>b</sup>	30	39 <sup>b</sup>	2.39	+ 0.85	1.39	0	7	21	0	9	sw.	J. W. Shaw.
Chillicothe.....	Ross.....	630	9								1.34		0.95	0	3					Marion Mackey.
Cincinnati.....	Hamilton.....	628	41	70.9	+ 1.9	95	10	43	30	30	1.95	+ 0.36	0.81	0	6	14	8	8	ne.	U. S. Weather Bureau.
Circleville.....	Pickaway.....	694	24	68.8	+ 0.8	96	1 <sup>+</sup>	35	30	40	2.73	+ 0.45	1.37	0	10	19	1	10	s.	Dr. H. R. Clarke.
Clarington.....	Monroe.....	600	9			92	2 <sup>+</sup>	35	28 <sup>+</sup>		1.95		0.60	0	7	18	7	5	sw.	Col. S. Tschappat.
Columbus.....	Franklin.....	918	34	68.0	+ 2.1	94	10	38	30	28	2.83	+ 0.31	1.11	0	8	15	8	7	sw.	U. S. Weather Bureau.
Coshocton.....	Coshocton.....	770	3								3.76		0.98	0	10					Mrs. Ada Jeffries.
Dayton (1).....	Montgomery.....	899		68.3	+ 1.5	93	10	38	30	29	2.16	+ 0.34	1.19	0	5	10	11	9	n.	U. S. Weather Bureau.
Dayton (2).....	do.....	790	31	68.4	+ 1.0	96	9 <sup>+</sup>	32	30	36	2.41	+ 0.16	1.24	0	5					Mrs. Edith L. Boyer.
Delaware.....	Delaware.....	896	15	67.2	+ 1.1	95	9 <sup>+</sup>	30	30	40	3.99	+ 1.14	2.40	0	6	18	10	2	nw.	De Witt H. Leas.
Demos.....	Delaware.....	1,325	24	68.5	+ 2.7	94	7	36	30	40	2.18	+ 0.68	0.71	0	8	22	4	4	s.	J. T. Dysart.
Dennison.....	Tuscarawas.....	846	2	67.4		97	9	35	27 <sup>+</sup>	40	2.13		1.23	0	9	17	10	3	n.	Water Supply Co.
Frankfort.....	Ross.....	745	20	69.0	+ 2.0	95	1 <sup>+</sup>	35	30	34	4.57	+ 2.28	1.35	0	6	17	6	7	s.	O. A. Cory.
Gallipolis.....	Gallia.....	580									1.44		0.75	0	5					Samuel F. Neal.
Garrettsville.....	Portage.....	1,005	28	65.0	+ 3.5	93	10	32	30	36	3.49	+ 0.04	1.15	0	13	11	13	6	nw.	S. M. Luther.
Granville.....	Licking.....	960	30	67.2	+ 1.8	94	1 <sup>+</sup>	33	30	37	5.30	+ 2.41	2.36	0	9	19	1	10	sw.	Dr. L. E. Davis.
Gratiot.....	do.....	1,000	23	66.8	+ 1.3	89	1 <sup>+</sup>	34	30	36	2.16	+ 0.60	0.90	0	9	15	12	3	w.	W. B. Longstreth.
Green.....	Adams.....	500	19	70.4	+ 1.7	94	9	39	27	39	2.47	+ 0.03	1.12	0	4	24	3	3	w.	W. F. Kenyon.
Green Hill.....	Columbiana.....	1,135	19	64.6	+ 1.3	90	10	32	30	37	5.19	+ 2.49	3.42	0	11	12	15	3	sw.	Jos. E. Bentley.
Greenville.....	Darke.....	1,060	26	66.2	+ 1.6	90	1 <sup>+</sup>	35	30	29	2.33	+ 0.29	0.78	0	7	13	7	10	e.	Geo. A. Katzenberger.
Hamilton.....	Butler.....	601									3.07		1.30	0	8	17	7	6		Earl W. Stout.
Haydenville.....	Hocking.....	700		67.7 <sup>c</sup>		96 <sup>c</sup>	1 <sup>+</sup>	36	28 <sup>+</sup>	44 <sup>c</sup>	2.86		1.60	0	8				sw.	H. W. Stiers.
Hillsboro.....	Highland.....	1,063	33	69.0	+ 0.8	95	2 <sup>+</sup>	36	30	34	3.78	+ 1.12	2.18	0	5	9	17	4	sw.	Carey H. Roush.
Ironton.....	Lawrence.....	575	29	70.8	+ 3.1	96	1	39	27 <sup>+</sup>	40	1.30	+ 1.39	0.71	0	7	21	2	7	sw.	James Bull.
Kenton.....	Hardin.....	1,015	20	67.0 <sup>b</sup>	+ 0.2	94 <sup>b</sup>	10	29 <sup>+</sup>	27	39 <sup>+</sup>	4.09	+ 1.84	1.64	0	5				w.	N. S. Martin.
Killbuck.....	Holmes.....	1,087	19	66.3	+ 1.5	94	10	33	30	37	4.15	+ 1.41	1.25	0	9	24	3	3	e.	Lloyd C. Schonauer.
Kings Mills.....	Warren.....	640									2.15		0.67	0	8				ne.	Frank M. See.
Lancaster.....	Fairfield.....	898	17	67.5	+ 1.1	92	2	36	30	31	3.32	+ 1.04	1.22	0	6	20	3	7	sw.	R. L. Renshaw.
McConnelsville.....	Morgan.....	710	28	67.4	+ 1.0	92	7	35	30	36	2.23	+ 0.61	0.89	0	9	9	14	7	sw.	C. H. Morris.
Marietta.....	Washington.....	627	92	69.5	+ 4.0	92	2 <sup>+</sup>	37	30	34	1.99	+ 1.15	0.71	0	10	14	11	5	n.	Prof. T. D. Biscoe.
Marion.....	Marion.....	980	34	68.0	+ 1.3	95	9	30	30	40	2.90	+ 0.14	1.18	0	6	10	14	6	sw.	Dr. E. H. Raffensperger.
Milfordton.....	Knox.....	1,200	20	66.9	+ 1.9	96	9	31	30	43	2.08	+ 0.59	1.20	0	5	20	8	2		V. H. Burgess.
Milligan.....	Perry.....	875	19	66.9	+ 0.7	92	1 <sup>+</sup>	33	27 <sup>+</sup>	41	3.75	+ 1.54	1.76	0	9	15	10	5	sw.	V. C. Eveland.
Millport.....	Columbiana.....	1,145	19	65.6	+ 1.9	90	10	32	30	36	5.91	+ 2.50	3.50	0	9	11	15	4	sw.	G. F. Copeland.
Nelle.....	Coshocton.....	850	12	66.6	+ 1.2	93	9	33	30	42	2.70	+ 0.16	0.90	0	6	12	9	9	s.	Ethel L. Gammertsfelde.
New Alexandria.....	Jefferson.....	1,050	27	70.2	+ 4.8	98	1	35	27 <sup>+</sup>	35	4.74	+ 2.07	1.50	0	6	15	7	8	s.	Mrs. Mary K. Pennell.
New Berlin.....	Stark.....	1,100	19	65.6	+ 0.3	93	10	33	30	36	3.97	+ 1.36	1.30	0	10	20	7	3	n.	Clayton Holl.
New Waterford.....	Columbiana.....	1,053	17	65.6	+ 1.8	91 <sup>a</sup>	10	34	30	33 <sup>a</sup>	4.72	+ 2.30	1.80	0	7	17	10	3	sw.	Sam. C. Scott.
O. S. University.....	Franklin.....	757	29	67.8	+ 2.5	93	10	32	30	34	2.13	+ 0.45	1.19	0	5	17	9	4	s.	Prof. H. C. Lord.
Oregonia.....	Warren.....																			E. H. Stephens.
Pataskala.....	Licking.....	1,015	20	67.4	+ 1.2	92	6 <sup>+</sup>	34	30	36	3.68	+ 0.89	1.09	0	8	13	12	5	ne.	J. N. Ridenour.
Peebles.....	Adams.....	645	1	67.9		95	7	30	27	42	3.44		1.17	0	8	20	3	7	w.	Ora O. Smalley.
Philo.....	Muskingum.....	1,018	17	68.0	+ 0.6	91	1 <sup>+</sup>	34	30	34	3.85	+ 1.40	1.30	0	8	12	10	8	nw.	L. C. Burekholter.
Piqua.....	Miami.....	847	2								4.36		1.44	0	9	18	3	9	ne.	Harry L. Roberts.
Plattsburg.....	Clark.....	1,130	19	67.2	+ 0.1	93	6	31	30	31	2.37	+ 0.09	0.73	0	4	20	6	4	sw.	F. E. Stewart.
Portsmouth.....	Scioto.....	527	81	68.6	+ 0.8	92	1 <sup>+</sup>	38	30	33	2.98	+ 0.29	0.84	0	9	17	1	12	sw.	Dr. H. A. Schirmann.
Prospect.....	Marion.....	909	2																	Neil J. Gast.
Shenandoah.....	Richland.....	1,100	20																	T. B. Arnett.
Sidney.....	Shelby.....	985	29	67.8	+ 1.8	95	9 <sup>+</sup>	32	30	37	2.82	+ 0.20	0.92	0	5	20	5	5	sw.	Hamline B. Blake.
Somerset.....	Perry.....	1,080	13	68.2	+ 0.7	95	2	38	30	33	3.13	+ 0.89	0.95	0	9	20	6	4	s.	Miss M. W. C. Sheridan.
Springfield.....	Clark.....	980	18								3.08	+ 0.10	1.25	0	7	14	14	2	sw.	W. A. Webster.
Summerfield.....	Noble.....	1,187	6	67.4 <sup>b</sup>		93 <sup>b</sup>	10	32 <sup>b</sup>	30	41 <sup>b</sup>	2.35		0.54	0	9	12	13	5	s.	H. R. McClintock.
Syracuse.....	Meigs.....	583	1	71.8		96	7 <sup>+</sup>	38	30	43	2.30		0.60	0	8	19	4	7	w.	Irving R. Karr.
Thurman.....	Gallia.....	696	19	70.6	+ 0.7	94	7 <sup>+</sup>	38	27	37	1.06	+ 0.64	0.47	0	4	15	6	9		D. D. Thomas.
Urbana.....	Champaign.....	1,031	44	67.4	+ 2.2	94	6	30	30	38	3.07	+ 0.12	1.29	0	6	18	10	2	sw.	Prof. J. H. Williams.
Warren.....	Trumbull.....	900	23	67.0	+ 2.7	95	10	33	30	35	3.90	+ 0.73	0.86	0	10	18	7	5	sw.	M. D. McCorkle.
Waverly.....	Pike.....	590	29	67.9	+ 0.5	94	2 <sup>+</sup>	35	30	40	1.98	+ 0.50	1.05	0	9	12	1	17	n.	Dr. Peru Hutt.
Waynesville.....	Warren.....	700	27	67.2	+ 0.4	91	10	35	30	28	2.46	+ 0.03	0.75	0	6	18	11	1	nw.	Charles Michener.
Wooster.....	Wayne.....	1,030	33	65.6	+ 1.9	93	10	30	30	39	4.41	+ 1.02	1.56	0	9	18	6	6	sw.	Experiment Station.
Youngstown.....	Mahoning.....	846	19								4.17	+ 1.29	1.07	0	11	20	3	7	s.	J. M. Dickey.
Zanesville.....	Muskingum.....	700	25								2.24	+ 0.21	0.58	0	9	17	2	11	s.	S. G. Sprague.
<b>Indiana.</b>																				
Anderson.....	Madison.....	892	17	67.2	+ 0.4	93	10	32	30	32	4.50	+ 1.46	1.53	0	9	20	8	2	sw.	W. H. Stanton.
Attica.....	Fountain.....	522	2																	Robt. E. Ray.
Bloomington.....	Monroe.....	744	17	68.3	+ 0.0	96	5 <sup>+</sup>	35	30	37	4.19	+ 1.50	1.85	0	7	19	5	6	se.	Earl E. Ramsey.
Bluffton.....	Wells.....	835	17	68.2	+ 2.5	99	10	32	30	41	2.58	+ 0.75	0.70	0	9	9	12	9	sw.	Geo. R. Rinehart.
Butler.....	Jennings.....	767	27	70.3	+ 1.9	97	7	33	30	44	3.09	+ 0.35	1.24	0	7	22	7	1		C. F. Hole.
Cambridge City.....	Wayne.....	941	21	66.0	+ 1.0	96	10	30	30	40	3.01	+ 0.35	1.40	0	4	23	0	7	n.	Heze Barnett.
Columbus.....	Bartholomew.....	632	29	68.2	+ 1.0	97	5 <sup>+</sup>	32	30	38	2.79	+ 0.23	1.08	0	7	21	6	3	sw.	John A. Perry.
Con																				

TABLE 1.—Climatological data for September, 1912. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.			Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>Indiana—Continued.</b>																				
Mauzy.	Rush.	980	32	67.6	+ 2.7	97	10	30	30	35	3.29	+ 0.40	1.17	0	7	14	10	6	sw.	Elwood Kirkwood.
Monticello.	White.	674	2	68.8	0.0	96	10	34	30	34	2.16	- 0.35	1.21	0	6	17	6	7	se.	J. E. Loughry.
Moore Hill.	Dearborn.	980	11	68.8	0.0	96	10	34	30	34	2.81	- 0.35	1.21	0	6	24	3	3	w.	W. S. Bigney.
Mount Vernon.	Posey.	410	26	71.0	+ 0.3	96	7	42	27	34	4.30	+ 1.55	2.30	0	5	21	4	5	sw.	Guy B. Green.
Nashville.	Brown.	66.2	7	66.2	0.0	93	5†	30	30	39	3.53	0.00	1.10	0	5	7	13	10	w.	W. C. Gobie.
Paoli.	Orange.	611	15	69.2	+ 0.1	98	5†	34	30	40	4.81	+ 1.43	1.78	0	8	16	10	4	sw.	James A. Gillum.
Princeton.	Gibson.	481	30	71.7	+ 3.0	100	10	38	27	37	5.21	+ 2.02	3.96	0	5	25	3	2	sw.	Albert Mills.
Richmond.	Wayne.	972	27	66.0	+ 0.3	93	10	31	30	35	2.18	- 0.52	0.88	0	6	15	12	2	sw.	Walter Vossler.
Rochester.	Fulton.	775	7	66.4	0.0	90	1†	34	30	28	2.62	0.00	0.56	0	9	15	11	4	sw.	G. P. Keith.
Rockville.	Parke.	722	26	69.6	+ 2.5	98	6	31	30	38	1.44	- 1.57	0.78	0	6	11	14	5	se.	C. A. Lee.
Rome.	Perry.	370	9	73.2	0.0	91	5†	40	27	41	3.14	+ 0.52	0.91	0	7	26	4	0	sw.	Adam Anspach.
Salamonia.	Jay.	950	7	66.0	0.0	94	10	30	30	36	5.03	0.00	1.51	0	8	11	13	6	sw.	S. A. Armstrong.
Salem.	Washington.	717	19	68.7	0.0	95	10	34	30	41	3.15	+ 0.52	0.95	0	7	14	13	3	sw.	Emmet S. Allen.
Scottsburg.	Scott.	570	18	70.4	+ 0.7	97	10	37	30	37	3.75	+ 1.30	1.02	0	6	16	10	4	s.	Frank H. Park.
Seymour.	Jackson.	610	25	69.0	+ 0.9	100	9	35	30	40	2.82	- 0.08	1.02	0	6	12	17	1	sw.	J. Robt. Blair.
Shelbyville.	Shelby.	768	8	68.4	0.0	96	9†	32	30	37	2.88	0.00	1.19	0	6	12	17	1	sw.	Edgar G. Hodson.
Shoals.	Martin.	523	5	68.4	0.0	96	9†	32	30	37	2.88	0.00	1.19	0	6	12	17	1	sw.	Rev. G. Halleck Rowe.
Terre Haute.	Vigo.	498	22	69.1	- 0.3	94	6	39	30	27	2.39	- 0.39	0.74	0	7	11	12	7	sw.	U. S. Weather Bureau.
Veedsburg.	Fountain.	612	13	69.4	+ 1.0	98	7†	34	27	36	2.27	- 0.29	0.51	0	10	20	8	2	s.	L. A. Culver, Jr.
Vevay.	Switzerland.	525	31	71.6	+ 2.0	97	10	40	30	34	4.95	+ 2.00	2.50	0	7	7	14	9	sw.	Miss Frederica Boerner.
Vincennes.	Knox.	431	20	71.2	+ 0.5	99	5	40	30	32	5.70	+ 2.64	3.00	0	5	22	0	8	se.	Garrett V. List.
Washington.	Daviess.	484	16	70.5	+ 1.0	97	10	39	30	33	3.60	+ 0.34	1.64	0	8	18	8	4	sw.	Charles C. Feagans.
Whitestown.	Boone.	529	4	66.0	0.0	92	2†	33	30	36	3.56	0.00	1.19	0	9	7	23	0	sw.	Clyde O. Laughner.
Winona Lake.	Kosciusko.	865	5	67.0	0.0	96	10	32	30	33	2.32	0.00	0.95	0	7	6	23	1	sw.	Rev. Albert A. Young.
Worthington.	Greene.	526	30	69.3	+ 2.1	95	5†	36	30	32	4.11	+ 1.15	1.13	0	8	12	15	3	sw.	D. W. Sollday.
<b>Illinois.</b>																				
Albion.	Edwards.	531	21	70.6	+ 0.6	97	3†	40	30	31	4.96	+ 1.85	2.10	0	7	22	5	3	sw.	B. F. Michels.
Casey.	Clark.	645	9	67.8	- 0.8	93	7	33	30	31	3.57	+ 0.45	1.42	0	5	16	8	6	sw.	William Chenoweth.
Charleston.	Coles.	720	27	67.8	- 0.8	93	7	33	30	31	3.57	+ 0.45	1.42	0	7	13	12	5	s.	Jacob B. Daisy.
Danville.	Vermilion.	604	11	69.6	+ 1.8	97	5†	33	30	35	3.06	- 0.26	1.42	0	9	20	5	5	s.	J. J. Lemon.
Equality.	Gallatin.	421	14	72.6	+ 0.4	101	4†	40	27	39	5.42	+ 2.17	2.94	0	5	17	11	2	n.	Dr. L. W. Gordon.
Fairfield.	Wayne.	450	19	70.4	+ 0.1	99	6	36	27	37	3.53	+ 0.17	1.19	0	7	18	8	4	nw.	George A. Tromly.
Flora.	Clay.	495	26	69.8	+ 1.6	97	5†	36	30	35	2.61	- 0.54	1.31	0	8	17	9	4	sw.	W. L. Hanna.
Golconda.	Pope.	500	34	72.5	+ 0.8	100	5†	42	30	37	2.24	- 0.90	0.86	0	5	14	10	6	sw.	Dr. D. Lawrence.
Hoopeston.	Vermilion.	715	10	67.2	+ 1.1	91	1	35	30	30	2.13	- 1.47	0.58	0	8	19	7	4	sw.	S. F. Hoskinson.
McLeansboro.	Hamilton.	462	29	69.8	0.0	97	3	41	27	33	4.88	+ 1.73	2.08	0	7	22	3	5	sw.	Prof. W. C. Fairweather.
Metropolis.	Massac.	346	1	68.4	0.0	96	5†	32	30	35	2.22	0.00	1.43	0	7	21	4	5	sw.	Henry H. Humma.
Montrose.	Effingham.	599	2	68.4	0.0	96	5†	32	30	35	2.22	0.00	1.43	0	8	14	12	4	sw.	J. C. Spittler.
Mount Carmel.	Wabash.	424	11	69.8	- 0.4	95	3†	41	27	31	5.24	+ 1.85	2.52	0	8	21	1	8	sw.	Mrs. H. M. Phillips.
New Burnside.	Johnson.	613	17	69.6	- 2.5	98	10	36	27	44	3.50	+ 0.50	0.90	0	6	23	1	6	s.	Thomas H. McCabe.
Newton.	Jasper.	481	1	68.4	0.0	96	5†	32	30	35	2.22	0.00	1.43	0	7	21	4	5	sw.	J. M. Hicks.
Olney.	Richland.	486	25	70.9	+ 3.1	98	5	40	27	34	5.30	+ 1.90	1.57	0	9	21	6	3	s.	John T. Ratcliff.
Palatine.	Crawford.	500	30	70.9	+ 3.1	98	5	40	27	34	5.30	+ 1.90	1.57	0	9	21	6	3	s.	Duane Shaw.
Paris.	Edgar.	600	19	67.7	- 1.0	94	1†	34	30	29	2.65	- 0.70	1.30	0	5	14	15	1	sw.	H. P. Twyman.
Philo.	Champaign.	700	28	67.7	+ 1.7	97	6	30	30	38	1.26	- 1.85	0.51	0	4	17	9	4	se.	H. A. Burr.
Rantoul.	do.	768	21	68.4	+ 1.6	98	5†	33	30	34	1.41	- 2.15	0.33	0	6	19	5	6	se.	William Brainer.
Rileyville.	Saline.	400	15	68.4	+ 1.6	98	5†	33	30	34	1.41	- 2.15	0.33	0	5	23	0	7	n.	W. H. Thornberry.
Shawneetown.	Gallatin.	307	2	68.4	+ 1.6	98	5†	33	30	34	1.41	- 2.15	0.33	0	6	19	5	6	se.	Mrs. Mary O. Spivey.
Tuscola.	Douglas.	644	19	67.6	+ 1.3	95	10	35	30	29	1.76	- 1.31	0.55	0	6	10	17	3	sw.	Joseph O'Neal.
Urbana.	Champaign.	725	10	67.6	+ 1.3	95	10	35	30	29	1.76	- 1.31	0.55	0	6	10	17	3	sw.	Prof. J. G. Mosier.
<b>Kentucky.</b>																				
Alpha.	Clinton.	700	18	71.6	+ 0.9	90	1†	46	27	30	4.47	+ 1.20	2.51	0	4	20	5	5	w.	W. W. Hicks.
Anchorage.	Jefferson.	700	11	69.0	+ 0.1	95	5†	36	30	33	4.88	+ 2.11	1.81	0	9	17	11	2	sw.	C. E. Barrett.
Bardstown.	Nelson.	637	15	72.9	+ 1.1	99	10	41	27	35	4.16	+ 1.47	1.40	0	6	22	1	7	se.	T. S. Talbott.
Beattyville.	Lee.	650	8	69.6	0.0	96	3	38	30	42	3.10	+ 0.32	1.20	0	7	14	4	12	e.	G. W. Cann.
Beaver Dam.	Ohio.	441	9	72.3	+ 1.1	99	5	39	27	39	2.59	- 0.02	1.03	0	7	21	1	8	s.	W. T. Austin.
Berea.	Madison.	1,070	11	71.5	+ 2.3	96	10	36	30	32	2.61	- 0.11	1.38	0	6	25	1	4	ne.	C. F. Rumold.
Blandville.	Ballard.	445	31	72.0	+ 1.0	97	6	43	27	32	2.79	- 0.19	1.05	0	10	15	12	3	ne.	E. W. Horr.
Bowling Green.	Warren.	500	23	72.4	+ 0.4	100	10	40	27	40	2.54	- 0.52	1.02	0	5	22	1	7	s.	Mrs. L. G. Causey.
Burnside.	Pulaski.	773	21	72.9	+ 0.1	99	4†	40	27	36	3.61	+ 0.35	1.35	0	6	21	1	8	sw.	G. M. Estes.
Calhoun.	McLean.	397	9	72.9	+ 0.1	99	4†	40	27	36	3.61	+ 0.35	1.35	0	7	9	20	1	e.	W. A. Taylor.
Catlettsburg.	Boyd.	544	23	73.8	+ 3.3	103	10	39	27	44	2.09	- 0.96	0.96	0	4	22	1	7	n.	Mrs. Mertie M. Bruns.
Earlington.	Hopkins.	370	22	73.8	+ 3.3	103	10	39	27	44	2.09	- 0.96	0.96	0	4	22	1	7	n.	Brick Southworth.
Edmonton.	Metcalfe.	600	21	69.2	+ 0.7	93	7	40	30	37	4.95	+ 1.53	1.40	0	8	16	2	12	se.	Miss Lee Ray.
Eubank.	Rowan.	1,177	18	69.2	+ 0.7	93	7	40	30	37	4.95	+ 1.53	1.40	0	8	16	2	12	se.	Mrs. Katie Payne.
Falmouth.	Pendleton.	530	23	69.7	0.0	97	10	33	30	53	1.56	0.00	1.20	0	9	21	2	7	e.	J. V. Oldham.
Farmers.	Franklin.	668	6	70.5	+ 1.9	95	9	40	30	33	1.95	- 0.89	0.64	0	6	21	2	7	n.	Miss Gertrude Sorrell.
Frankfort.	Simpson.	590	21	72.4	+ 1.0	97	4	40	27	37	4.01	+ 0.35	1.71	0	4	4	23	3	sw.	J. H. Roberts.
Franklin.	Green.	691	18	72.4	+ 1.0	97	4	40	27	37	4.01	+ 0.35	1.71	0	4	4	23	3	sw.	J. E. Newman.
Greensburg.	Jessamine.	581	20	72.9	+ 2.9	100	5†	37	21	49	2.68	- 0.29	0.79	0	9	15	0	15	sw.	L. C. Alcorn.
High Bridge.	Christian.	762	9	73.2	+ 1.5	101	7	41	30	38	1.20	- 1.84	0.85	0	5					

TABLE 1.—Climatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.					Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	
<b>Tennessee.</b>																				
Ashwood.....	Maury.....	725	33	73.5	+ 2.8	97	8	46	20	39	3.21	- 0.45	1.00	0	5	13	11	6	s.	Mrs. Joseph W. Fleming.
Benton.....	Polk.....	880	27	75.5	+ 4.4	98	1	46	20	37	3.47	+ 0.44	1.20	0	6	9	19	2	n.	George L. Williams.
Birds Bridge.....	Greene.....	.....	15	.....	.....	.....	.....	.....	.....	.....	3.42	.....	1.27	0	5	18	4	8	w.	David B. George.
Bluff City.....	Sullivan.....	.....	19	73.2	+ 2.8	93	47	43	30	33	3.89	+ 1.04	1.12	0	11	15	3	12	v.	John W. Fisher.
Byrdstown.....	Pickett.....	1,026	19	73.2	+ 2.8	93	47	43	30	33	2.75	- 0.56	1.80	0	4	11	13	6	s.	John Lacy.
Carthage.....	Smith.....	500	28	75.4	+ 4.1	97	34	44	30	35	2.00	- 1.23	0.81	0	6	19	0	11	se.	Earl C. Pickering.
Cedar Hill.....	Robertson.....	625	12	73.9	+ 1.1	100	1	40	30	42	3.56	+ 0.37	1.35	0	7	15	10	2	n.	J. Frank Ruffin.
Celina.....	Clay.....	494	9	.....	.....	.....	.....	.....	.....	.....	4.31	.....	1.42	0	7	11	1	18	s.	Charles M. Anderson.
Charleston.....	Bradley.....	709	15	.....	.....	.....	.....	.....	.....	.....	4.16	+ 0.58	1.67	0	6	12	3	15	n.	John T. Weeks.
Chattanooga.....	Hamilton.....	808	33	74.7	+ 3.5	94	1	51	20	28	2.36	- 0.89	0.98	0	9	12	10	8	ne.	U. S. Weather Bureau.
Clarksville.....	Montgomery.....	500	49	72.6	+ 2.6	94	4	42	30	36	2.38	- 0.44	1.46	0	6	21	8	1	n.	Prof. James A. Lyon.
Clinton.....	Anderson.....	800	24	.....	.....	.....	.....	.....	.....	.....	2.85	+ 0.04	0.76	0	6	17	0	13	n.	Hugh Evans.
Crossville.....	Cumberland.....	1,895	8	70.5	.....	91	9	43	.....	46*	4.23	.....	2.11	0	6	26	1	3	.....	J. E. Converse.
Dandridge.....	Jefferson.....	850	16	74.9	+ 4.0	98	14	44	20	39	2.74	- 0.97	1.41	0	7	15	10	2	sw.	James E. Swann.
Decatur.....	Meigs.....	800	16	72.8	+ 1.3	95	84	44	30	37	3.57	+ 1.12	1.08	0	7	10	18	2	s.	J. Worth Lillard.
Dickson.....	Dickson.....	500	17	73.3	+ 1.0	100	8	42	28	38	2.41	- 0.64	1.02	0	4	26	2	2	s.	Nathan R. Sugg.
Dover.....	Sewanee.....	726	3	74.8	.....	98	4	44	20	41	3.15	.....	1.80	0	7	14	13	3	.....	Asa M. Tippet.
Dunlap.....	Squatchie.....	1,575	22	.....	.....	.....	.....	.....	.....	.....	3.28	+ 0.61	1.20	0	11	20	2	8	e.	S. Bradford Boyd.
Elizabethton.....	Carter.....	1,850	15	69.0	+ 2.7	91	14	37	20	43	6.85	+ 3.40	3.03	0	9	12	13	5	se.	Charles Boyd.
Erasmus.....	Cumberland.....	560	30	73.8	+ 2.5	93	84	47	20	33	2.08	- 1.40	0.58	0	6	19	8	3	w.	Mrs. Sarah E. Ashley.
Florence.....	Rutherford.....	648	22	72.5	+ 1.2	93	84	45	30	31	3.39	- 0.16	1.60	0	4	17	5	8	.....	Erastus F. Bell.
Franklin.....	Williamson.....	.....	10	.....	.....	.....	.....	.....	.....	.....	1.70	.....	0.95	0	2	24	1	5	s.	Young M. Rizer.
Halls Hill.....	Rutherford.....	841	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Edward F. Wright.
Harriman.....	Roane.....	983	26	72.6	+ 2.8	96	14	44	30	40	3.65	+ 0.53	1.75	0	10	15	13	2	nw.	Mrs. Mary Lutzelman.
Hohenwald.....	Lewis.....	600	15	73.4	+ 1.5	95	14	45	20	39	2.89	- 0.94	1.10	0	5	5	25	0	nw.	Capt. H. Paul Seavy.
Iron City.....	Lawrence.....	.....	2	.....	.....	.....	.....	.....	.....	.....	3.53	.....	1.24	0	.....	.....	.....	.....	.....	Calvin C. Maddox.
Jefferson City.....	Jefferson.....	1,620	1	71.8	+ 3.9	94	1	46	20	36	2.68	+ 0.11	0.93	0	7	24	2	4	nw.	Ward Crosby.
Johnson City.....	Washington.....	364	16	74.0	+ 1.8	100	14	44	27	41	3.57	+ 0.35	1.57	0	6	14	12	4	nw.	Miss Sallie B. Mathews.
Johnsonville.....	Humphreys.....	.....	21	.....	.....	.....	.....	.....	.....	.....	3.67	+ 0.04	2.30	0	6	22	0	8	n.	Henry Crumblins.
Kingston.....	Roane.....	977	41	74.2	+ 4.8	94	3	51	20	30	3.08	+ 2.27	2.18	0	7	11	11	8	ne.	U. S. Weather Bureau.
Knoxville.....	Knox.....	522	3	73.8	.....	95	34	40	20	44	2.81	- 0.43	1.00	0	8	15	3	12	n.	H. Logan Fields.
Lebanon.....	Wilson.....	727	17	74.2	+ 2.7	96	14	46	20	41	3.27	- 0.43	1.25	0	6	19	6	5	n.	Dr. Robert D. Crutcher.
Lewisburg.....	Marshall.....	816	9	.....	.....	.....	.....	.....	.....	.....	3.33	- 0.33	1.66	0	4	21	2	7	e.	Robert W. Clark.
Loudon.....	Giles.....	770	24	73.4	+ 2.4	92	4	48	30	31	3.01	- 0.95	0.91	0	5	16	14	0	s.	Col. James H. Burrow.
Lynnville.....	Giles.....	.....	8	.....	.....	.....	.....	.....	.....	.....	4.12	.....	1.57	0	5	21	0	9	s.	Miss Alice L. Headrick.
McGhee.....	Monroe.....	1,011	28	75.0	+ 5.2	98	44	44	20	43	5.27	+ 2.04	2.35	0	6	22	3	5	s.	Horace H. Stiles.
McMinnville.....	Warren.....	1,050	16	.....	.....	.....	.....	.....	.....	.....	3.48	+ 0.82	1.29	0	7	15	7	5	e.	Mrs. Sam T. Broyles.
Maryville.....	Blount.....	2,486	15	67.0	+ 3.6	95	1	40	20	38	3.94	+ 1.22	0.86	0	8	15	9	6	ne.	Edward E. Barry.
Mountain City.....	Johnson.....	654	41	73.9	+ 2.4	95	8	48	30	33	2.46	- 1.44	0	8	9	3	18	3	s.	U. S. Weather Bureau.
Nashville.....	Davidson.....	1,280	22	73.2	+ 3.6	91*	15	48	20	30*	3.50	+ 1.13	1.44	0	4	21	1	8	nw.	Dr. Charles T. Burnett.
Newport.....	Coeke.....	1,215	5	.....	.....	.....	.....	.....	.....	.....	2.44	.....	0.97	0	4	21	1	8	nw.	Burl W. Buttram.
New River.....	Scott.....	779	15	74.3	+ 2.0	96	47	46	30	32	4.67	+ 1.01	1.80	0	7	14	10	6	ne.	Mrs. Ross Woods.
Palmetto.....	Bedford.....	357	15	73.5	.....	96	7	46	27	36	3.10	+ 0.41	1.72	0	5	21	2	7	.....	Oliver C. Kirksey.
Perryville.....	Decatur.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Miss Carrie Cash.
Pinewood.....	Hickman.....	1,159	27	73.4	+ 4.6	94	14	47	20	36	3.68	+ 0.96	1.75	0	6	21	4	5	e.	Fred Beal.
Rogersville.....	Hawkins.....	1,410	24	70.6	+ 3.3	94	7	39	20	41	3.81	+ 0.22	2.30	0	6	7	16	7	n.	Samuel G. Wilson.
Rugby.....	Morgan.....	442	28	75.1	+ 3.0	97	3	47	27	38	4.12	+ 0.89	1.75	0	6	21	7	2	ne.	W. H. Carrington.
Savannah.....	Hardin.....	.....	6	74.4	.....	93	1	49	21	36	3.39	.....	1.20	0	7	5	11	14	sw.	Herbert O. Eckel.
Sevierville.....	Sevier.....	2,000	16	70.9	+ 1.4	89	24	49	27	28	4.06	+ 0.90	.....	.....	.....	.....	.....	.....	.....	University of the South.
Sewanee.....	Franklin.....	920	6	73.0	.....	94	7	45	30	35	2.13	.....	1.25	0	5	14	11	5	s.	Ernest H. Hull.
Sparta.....	White.....	377	9	72.2	+ 0.1	98	54	38	27	41	1.92	- 1.68	1.10	0	5	21	8	1	n.	Hudnall A. Boden.
Springville.....	Henry.....	1,350	15	71.6	.....	94	44	43	30	39	3.50	+ 0.10	1.05	0	8	19	2	9	ne.	J. Caloway Carr.
Tazewell.....	Claborn.....	1,075	24	73.0	+ 3.1	94	44	43	20	35	5.41	+ 2.27	3.18	0	6	12	14	4	s.	Reuben T. Moore.
Tullahoma.....	Coffee.....	909	9	.....	.....	.....	.....	.....	.....	.....	3.65	.....	2.00	0	7	15	4	8	sw.	John K. Roberts.
Walling.....	White.....	753	26	73.2	+ 3.1	95	44	45	20	38	3.61	+ 0.24	1.64	0	7	4	20	6	n.	Harry C. Boyd.
Waynesboro.....	Wayne.....	400	15	.....	.....	97	44	.....	.....	.....	2.86	+ 0.05	1.00	0	6	13	16	1	s.	William R. Wilson.
Wildersville.....	Henderson.....	550	11	.....	.....	.....	.....	.....	.....	.....	5.23	+ 2.25	2.00	0	9	19	4	7	w.	James G. Elizer.
Worsham.....	Sumner.....	850	15	73.0	+ 0.4	91	44	45	30	28	5.68	+ 2.29	4.13	0	5	16	9	5	w.	.....
Yukon.....	Lincoln.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<b>Alabama.</b>																				
Bridgeport.....	Jackson.....	660	12	.....	.....	.....	.....	.....	.....	.....	4.58	+ 1.72	1.55	0	6	.....	.....	.....	.....	R. L. Moore.
Decatur.....	Morgan.....	573	30	75.1	+ 2.3	93	14	51	20	35	3.26	+ 0.32	3.00	0	4	.....	.....	.....	.....	E. A. Carriger.
Florence.....	Lauderdale.....	563	28	72.6	+ 0.6	98	4	50	20	36	3.21	- 0.13	1.16	0	5	.....	.....	.....	.....	Robt. E. Coburn.
Guntersville.....	Marshall.....	580	2	76.2	.....	97	3	53	30	28*	3.87	.....	1.41	0	9	.....	.....	.....	.....	L. S. Long.
Madison.....	Madison.....	573	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. B. Stevenson.
Riverton.....	Colbert.....	360	15	72.6	+ 0.5	96	44	46	20	41	3.50	+ 0.10	2.20	0	5	.....	.....	.....	.....	Ernie J. Moore.
Scottsboro.....	Jackson.....	652	29	74.5	+ 2.6	93	2	50	20	31*	3.99	+ 0.42	2.11	0	7	12	7	11	ne.	H. A. Caldwell.
Tusculum.....	Colbert.....	488	30	74.1	+ 1.1	96	4	52	30	29	2.34	- 0.75	1.00	0	6	.....	.....	.....	.....	Samuel Moore.
<b>Georgia.</b>																				
Diamond.....	Gilmer.....	2,020	20	72.6	+ 4.0	91	14	46	20	35	3.60	- 1.14	1.49	0	12	13	9	8	.....	R. A. Kimzey.
<b>North Carolina.</b>																				
Andrews.....	Cherokee.....	1,800	2	71.3	.....	95	1	40	20	42	5.71	.....	2.30	0	10	12	15	3	sw.	J. D. Link.
Asheville.....	Buncombe																			

TABLE 1.—Climatological data for September, 1912. District No. 3—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
Virginia.																				
Blacksburg.....	Montgomery.....	2,170	21	67.6	+ 3.4	90	1†	42	20†	36	7.87	+ 4.80	3.43	0	8	12	6	12	w.	Agr. Exp. Station.
Burkes Garden.....	Tazewell.....	3,250	17	61.8	+ 1.5	83	6	31	20	41	3.37	- 0.32	2.00	0	3	14	6	10	w.	C. H. Greever.
Elk Knob.....	Lee.....	3,243	9	70.2	.....	88	1†	45	30	24	4.56	.....	1.81	0	10	19	5	6	nw.	Henry Nicoll.
Ivanhoe.....	Wythe**.....	2,028	8	65.8	.....	86	1	44	20	26	4.66	.....	1.34	0	10	11	14	5	w.	Miss Alice G. Jewett.
Lebanon.....	Russel.....	2,131	2	63.1	.....	91	1†	27	20	56	4.50	.....	1.60	0	3	21	0	9	.....	E. M. Hunter.
Max Meadows.....	Wythe.....	2,028	16	67.2	+ 1.8	90	1†	41	20	41	4.29	+ 1.27	2.05	0	4	14	7	9	e.	James M. Graham.
Mendota.....	Washington.....	1,350	3	.....	.....	.....	.....	.....	.....	.....	4.45	.....	1.45	0	9	.....	.....	.....	.....	Frank M. Barker.
Mountain Lake.....	Giles.....	4,348	2	61.4	.....	82	2†	38	28	28	6.55	.....	3.70	0	5	24	1	5	n.	H. E. Dorland.
Radford.....	Montgomery.....	1,773	3	.....	.....	.....	.....	.....	.....	.....	6.14	.....	2.28	0	6	.....	.....	.....	.....	Arthur Roberts.
Speers Ferry.....	Scott.....	1,221	16	.....	.....	.....	.....	.....	.....	.....	5.52	+ 1.84	1.71	0	7	.....	.....	.....	.....	Miss L. E. Venable.
Wytheville.....	Wythe.....	2,293	19	66.7	+ 3.1	88	7	42	20	35	4.84	+ 1.55	2.34	0	11	17	5	8	e.	U. S. Weather Bureau.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\*Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

†Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 3, Ohio Valley.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>New York.</b>																																	
Allegheny.....	Allegheny.....	.69	.51			.10						.14			.06	.50	.11		.37		.00			.55	.32		.25			.16	.03	3.91	
Bolivar.....	do.....	.70	.65			T.						.14				.45	.14		.20		.12	T.		.34	.70		.40	.80		.30	T.	4.94	
Olean  .....	do.....	1.92	.31	.50			.15						.12		.04	.97			.33					.08	.33		.28			.20		5.23	
<b>Pennsylvania.</b>																																	
Aleppo.....	Ohio.....			.05			.67	2.25								.17	.16		.16				.89									4.35	
Baldwin.....	Allegheny.....	.40	.10	.90				T.							.05	.45	.17		.28					.55	.07		.08					4.06	
Beaver Dam   .....	Ohio.....	T.	3.04	.12			.07		.46				T.			.05	.18		.41					.41	.28		.05		.24			5.29	
Brookville.....	do.....	.03	1.05	.04	.05		.04						T.			.02	.32		.47					.36	.35		.03		.10			2.86	
Claysville.....	Allegheny.....	1.01	.99	.15		.07										.15	.20		.15					.60	.15		.10	.05		.35		3.97	
Confluence   .....	Ohio.....	.68	.60	.21	.01		.55	T.	.37						.18	.20	.05		.30				T.	.68	.01		.10					3.87	
Corryopolis   .....	Youghiogheny.....	.34	.90	.56	.07		.12	.05	.10							.08	.21		.46					.90	2.05	.22		.90		.08	T.	7.11	
Davis Island Dam   .....	Ohio.....	T.	1.62	.15	.01		.22	.04	.29							.04	.10		.27	.01				.44	.16					T.		3.05	
Derry Station.....	do.....	.05	1.25	.20	.01		.22	.04	.29							.04	.10		.27	.01				.44	.16					T.		2.95	
Ellwood City   .....	Allegheny.....	.58	1.45	1.09			.83	.06	.10							.22	.37		.23	.37				.89	.32		.09			.05		6.23	
Franklin   .....	Ohio.....	.19	1.11	.08	.09		.23	.03					T.			.03	.37		.51					.38	.24	T.	.09	.03		.05		3.34	
Freepoint   .....	Allegheny.....	.12	.61	.82	.02		.24	.12	.45						.10	.40		.28						.83	.37	.04	.03	.09		.06	.03	4.04	
Greensboro   .....	do.....	.14	1.57	.08	.02		.24	.12	.45							.27	.10		.40					.35	.17		.03	.09		.19		4.05	
Greensburg.....	Monongahela.....	1.50	.60		.64		.12	.06	.30							.15	.28	.16		.40	1.30			.94	.32		.10	.30		.08		6.51	
Greenville.....	Youghiogheny.....	.16	2.33	1.53			.29	.21	.07							.55	.16		.10					.83	.30		.10			T.		3.86	
Grove City.....	Ohio.....	.34	T.	.85			.22	.10								.11			.35				T.	1.16	.01		.12			.10		3.85	
Herr's Island Dam   .....	do.....	.40	.31	.99		T.	.22	.10								.11			.35				T.	1.16	.01		.12			.10		2.97	
Indiana.....	Allegheny.....	.27	.96	.17	T.		.57	.10	.13						T.	.73	.22		.37					.82	.41		.32	.05		.52		8.02	
Irwin.....	do.....	.06	1.62	1.88	.52		.18	.05						.28		.03	.20		.12	T.				.82	.41		.32	.05		.52		5.53	
Johnstown.....	Monongahela.....	.22	2.01	.55			.52	.94	.01						.15	.50	.15		.08					T.	1.78	.22		.86	.02		.04		6.12
Lock No. 4   .....	Allegheny.....	.25	.90	.00			.52	.94	.01							.50	.15		.08					T.	1.78	.22		.86	.02		.04		5.52
Lycippus.....	Monongahela.....	.57	1.38	1.19	.29		.45	.32	.70							.20			.10					.01	.30							6.78	
Parkers Landing   .....	Allegheny.....	.17	2.19	.87			.31	.32							.11	.19		.50		.46	.37			1.14	.50		.24			.18		4.07	
Pittsburgh.....	do.....		.38	2.15												.50			.10					.15	.24	.01		T.	.10		.07		2.89
Saegertown.....	Ohio.....	1.29	.11	.03		.65	.04								.03	.16	.01		.10					1.20	.02		.06		.03	.01		2.47	
Saltsburg   .....	Allegheny.....		.20	.03		.06	.20									.20	.03		.26	.02	.03			.12	.20		.06			.03		4.98	
Sharon   .....	do.....	.02	1.27	.54	T.		.08	.36	.32						.07	.08	.30		.10					.28	.61	.04		.60		.26	.04	2.87	
Skidmore.....	Ohio.....		.71	.07		.02										.19			.33					.02		.45	T.		.10		.02		4.45
Somersett.....	do.....	.75	.25	1.25			.15	.55								.36			.65					.65								11.43	
Springdale   .....	Youghiogheny.....	.41	1.35	1.18			.16	.55						.06		1.35	.36		.81	.30				1.51	1.50	T.	1.45			.08		4.18	
Uniontown.....	Allegheny.....		1.55	.20	.30		.75	.03	.20							.17	.07		.17					.25	.41							6.41	
Warren.....	Monongahela.....	.16	.92	1.05			.46	.21	.05						T.	.22	.45		.42	.80				1.62	.15		.80			T.		5.38	
West Newton   .....	Allegheny.....	2.00	.42										.12			.60			.40			.10		1.06			.18					6.51	
West Newton   .....	Youghiogheny.....	.27	1.47	1.25	.32		1.47	.10	.32							.01	.26		.20	T.				.28	.46	T.		.10		T.			
<b>Maryland.</b>																																	
Deer Park.....	Youghiogheny.....	.21	3.55	.04												.71			.39					1.30	.52		.07	.09		.22		7.10	
Grantsville.....	do.....	.20	.52	1.08				.09								.16	.30		.40					1.20	.80		.55			.24		5.54	
Oakland.....	do.....	.10	1.58	.08												.20	.50		.55					1.79	.53	.07	.06	.11		.24		5.81	
<b>West Virginia.</b>																																	
Bancroft   .....	Great Kanawha.....				.70			.80								.34		.45	.50					.57				.73				4.00	
Beckley.....	do.....															.18		.55					.50	1.88			1.54					4.32	
Bens Run.....	Ohio.....			.08												.15		.78	.04				.42	1.00		.05	.05	.30				1.63	
Bluefield.....	Great Kanawha.....															.20		.60	.46					1.14	.97		.73		.25			2.79	
Brandonville   .....	Monongahela.....			1.85	.57			.10								.70	.15		.80					T.	1.35	.44		.28		.14		4.63	
Buckhannon.....	do.....	T.		.77												.20	.24		.26					.82	.05		*	*	.34			1.83	
Cairo.....	Little Kanawha.....			.12												.46	T.		.42	.30				.13		*	*	*	*	1.44		4.06	
Central Station.....	Middle Is. Creek.....			.53	T.		.57	.21								.10			.36					.74	.05		.60		.30			2.41	
Charleston   .....	Great Kanawha.....							.26								.22	.58	.04	.16	.40				.95	.90	.22		.35		.34		5.50	
Cheat Bridge   .....	Monongahela.....	.04		.11			.04	.80					.35			.56		.04	.09	.18				1.04	1.05	.61	.51		.18			6.17	
Cortland   .....	do.....	.26		.05				.18					.56			1.64		.09	.18					.60	.28				.14			2.47	
Creston   .....	Little Kanawha.....	.06						.18					.04			.49		.42	.26					.33	.28	T.			.86			1.93	
Cuba.....	Sand Creek.....					T.										.26		.20						.33	.28	T.			.86			1.93	
Davis   .....	Monongahela.....	.39	.48		.07		T.						.16			1.58		.13	T.					.52	.96	.61		.77		.45	T.	6.12	
Doane.....	Big Sandy.....						.30									.08		.08						.57	.11		.60		.31			1.97	
Elizabeth   .....	Little Kanawha.....	.06														.20		.20															

TABLE 2.—Daily precipitation for September, 1912. District No. 3—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
West Virginia—Con.																																	
Terra Alta.....	Monongahela.....	.20	.57	.13												.90			.65					1.80			1.10						5.35
Union.....	Great Kanawha.....				.97									T.		.06			.54				1.09	1.08								3.74	
Valley Fork.....	do.....																																
Webster Springs.....	do.....		.60	.20										.32				.21	.32				.05	.70	.63					.22	.24		3.49
Weillsburg.....	Ohio.....	1.50	.44				.06	.09							.26	.36			.19				.10	.78	T.		.03					4.71	
Weston[].....	Monongahela.....																																
Wheeling[].....	Ohio.....	T.	.01	1.36			.18	T.		.10					.16	.03	.19		.15					.41	.25			T.	.12	T.	T.		2.84
Williamson[].....	Big Sandy.....		.18			.02		T.		T.							.16		.32	.10				1.10	.26							2.52	
Ohio.																																	
Amesville.....	Ohio.....	.66	T.				.13	T.	.02							.27	T.		.40	.07			.40	.02			.15			T.		2.12	
Bangorville.....	Muskingum.....	T.	T.										1.07	.60		.05	.46		.81	.26	1.00		.34			.08		.06				3.41	
Bellefontaine[].....	Great Miami.....	.19						.02								.18							.04	.85	T.		.06					2.74	
Bladensburg.....	Muskingum.....			T.											.93	.22			.19				.72	1.11			.04					3.21	
Cadir.....	Ohio.....	.03	.26	1.81	T.			.11							.32	.48			.72					.83						T.		4.30	
Cambridge.....	Muskingum.....		.15	T.				.48							1.34	.14			1.07				.34	.20			T.					3.72	
Camp Dennison.....	Ohio.....							.75							.32	.48		T.	.46	T.			.50	T.	T.		.05					2.56	
Canal Dover.....	Muskingum.....			T.			.35								.13	.23							.23	.95		.03						1.92	
Canton[].....	do.....	.08	.92		.42		.02						.01		.41	.29	.10	.33		.16	.03			1.13	.04			.06				3.30	
Cardington.....	Scioto.....		.05															.12					1.39	.03								2.39	
Chillicothe[].....	do.....												.02												.95		.37					1.34	
Cincinnati.....	Ohio.....														.13	.37		.58	.03				.81			.03		.37				1.95	
Circleville[].....	Scioto.....	.15						T.	.05						.61	.11	.11			T.			.02	.37	.08		T.	.10				2.73	
Clarington.....	Ohio.....	.05	T.	.30			.15	.05						.40			.40							.60		T.	.01					1.95	
Columbus.....	Scioto.....						.50								.66	.42		.01	.03					.97	.14		T.					2.83	
Coshocton[].....	Muskingum.....		.32			.22	T.	.63					.10		.92	.10	.25							.98	.23				.01			3.76	
Dayton (1).....	Great Miami.....							T.							.08	.26	.60	.01					T.	1.19			.10					2.16	
Dayton (2).....	do.....														.35	.07	.60						1.24		T.		.15					2.41	
Delaware[].....	Scioto.....						T.								2.40	.46	T.	.24					.80	.04			.05					3.99	
Demos.....	Ohio.....	.08		.71				.06							.19	.34		.35					.37				.08					2.18	
Dennison.....	Muskingum.....	T.	.05	.07		T.	T.	T.					.10	.03		.34		1.23				.31	.27			.03			.04			2.13	
Frankfort.....	Scioto.....							1.35							1.30	T.			.35				.77	.60		.20	T.		.16		.29	4.57	
Gallipolis[].....	Ohio.....					T.	.48			2.36					.03	.28	.08		.04	.32			.38	.87	.06		T.					3.49	
Garrettsville.....	Mahoning.....	.02	.58	.33		.12	.13								.03	.53	.34		.03				.01	.74	T.	T.		.04				5.30	
Granville[].....	Muskingum.....	T.		.02			.02	.19							.90	.18	.05		.20				.33	.27		T.						2.16	
Gratiot.....	do.....		T.					.30																								2.47	
Green.....	Ohio.....																	1.12					.85				.20					5.19	
Green Hill.....	Muskingum.....	.18	3.24	T.			.02								.16	.28	T.		.40				.25	.48	.02	T.	.13		.03			2.33	
Greenville[].....	Great Miami.....									.15						.45	.20		.78				.24	.45			.06					3.07	
Hamilton[].....	do.....														.23	.21	.04		.86	.13			1.30	.14	T.		.16					2.86	
Haydenville.....	Ohio.....	.02						.05							.38	.25		1.60	.03				.42	.11								3.78	
Hillsboro.....	Scioto.....					T.									.89	.47			.14				2.18	.10		T.	T.					1.30	
Ironton.....	Ohio.....								.05						.17	.12			.10				.71	.12			.03					4.09	
Kenton.....	Scioto.....														1.05	.59	.66		1.17				.62									4.15	
Killbuck.....	Muskingum.....					.70		.01							1.00	.30	.07		.04				.45	1.25	.30		.04					2.15	
King's Mills[].....	Little Miami.....	T.							T.						.08	.42	.22		.67	.02			T.	.67			.06	T.				3.32	
Lancaster.....	Ohio.....							.36	T.						1.22	.16	T.		.26				.54	.78		T.						2.23	
McConnellsville.....	Muskingum.....		.08	.02			T.	.01						.29	.18	.14		.89					.56	T.			.06			.02		1.99	
Marietta.....	Ohio.....	.01		.08	.01		.15							.03		.40		.71					.42	.16								2.90	
Marion.....	Scioto.....			1.03			.06								T.	.35		.25				1.18					.03					2.08	
Millfordon.....	Muskingum.....														.50	.33	.05		T.				.75	.45								3.75	
Milligan.....	do.....	.03					.53	.05							.65				1.76	.05			.46	.13			.09					5.91	
Millport.....	Ohio.....		3.50				.10								.18	.27		.50				.15	1.05	.04			.12					2.70	
Nellie.....	Muskingum.....						.30								.64	.22			.04				.60	.90		T.						4.74	
New Alexandria.....	Ohio.....	1.50	.80			T.	T.	.50							T.							.57	T.	T.	.40		.97					3.97	
New Berlin.....	Muskingum.....		1.30	.55											.25	.40		.73		.14	.06		.44	.72	.03		.13			T.		4.72	
New Waterford.....	Ohio.....	1.80				.20		.28												.10												2.13	
O. S. University.....	Scioto.....						T.	.31								.24		.05					1.19	.34									
Oregonia[].....	Little Miami.....																															3.68	
Pataskala.....	Muskingum.....							.54							.82	.25	.06		.06				1.09	.81		T.	.05					3.44	
Peebles.....	Ohio.....	.15						.96	T.						.34				.19	.01				52	1.17			.10				3.85	
Philo (1).....	Muskingum.....			.37				.53							.93	.12			1.30	.08				.36	.16		T.					4.36	
Piqua[].....	Great Miami.....	.12								.02						.74	.32		1.44	.34				.39	.91		.08					2.37	
Plattsburg.....	do.....							.54							T.	.72			.41				.70									2.98	
Portsmouth[].....	Ohio.....								T.						.30	.01	.12		.84	.40			.04	.76				.10		.41			
Prospect[].....	Scioto.....																																
Shenandoah.....	Muskingum.....																																
Sidney.....	Great Miami.....														.13	.50		.42	.92				.85									2.82	
Somerset[].....	Muskingum.....	.74			T.			T.	.35						.42	.36	.20			.05			.05	.95	.61			T.				3.13	
Springfield.....	Great Miami.....							.59							.02	.69			.02	.41			1.25				.10					3.08	
Summerfield.....	Ohio.....			.04				.12							.54	.27			.53				.20	.40			.24			.01		2.35	
Syracuse.....	do.....	.10														.40			.20								.10			.30		2.30	
Thurman.....	do.....																																

TABLE 2.—Daily precipitation for September, 1912. District No. 3—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Indiana—Contd.</b>																																	
Huntingburg.....	Wabash.....															.58	1.61					.61				2.02	.97					5.79	
Huntington.....	do.....															.10		.40	.12				.55									3.09	
Indianapolis.....	W. Fork, White.		.34												T.	.54		.69	.01				.72			T.	1.08	.01				3.44	
Jeffersonville.....	Ohio.....			1.32												.09	.29	.02	.67	.06			.03	.83								3.76	
Judyville.....	Wabash.....			.33												.05	.18		.46	.09			.03	.21								1.35	
Kokomo.....	do.....			.16					.50							.13			.48	T.			.03	.83								2.60	
Lafayette  .....	do.....			.51												.12	.13		.46	.52	.03		.02	.57								2.39	
Logansport  .....	do.....			.16					.12							.09	.17		.58				.70	.08			T.	.03				1.87	
Madison.....	Ohio.....															.04	.43		.48	1.02			.19									3.54	
Marengo.....	do.....				.07	.07										.70			1.22				.52									3.98	
Marion  .....	Wabash.....			.04												.45			.70				.60	.13								4.37	
Mauzy.....	E. Fork, White.															.25	.50		.92	.25			.106				.08	.23				3.29	
Monticello  .....	Wabash.....		T.	.53					.13							.16	.11		.80				.43									2.16	
Moore Hill.....	Ohio.....								.03							.49			.35	.51			.121			T.	T.					2.81	
Mount Vernon.....	do.....															.40			.92				T.	.58			T.	10.230				4.30	
Nashville.....	E. Fork, White.					T.										.06	1.10						T.	.64			T.	1.05	.68			3.53	
Paoli.....	do.....					.33										.50		.96	.07				.28	.89								4.81	
Princeton.....	Wabash.....			.05													.10	1.00	.10													5.21	
Richmond.....	Whitewater.....			T.					T.							.34		.83	.05				.02	.86								2.18	
Rochester.....	Wabash.....			.21					.46							.50	.03		.26	.56	.01		T.	.54				.05					2.62
Rockville.....	do.....			.21					T.							T.	.13		.70	.08			T.	.31			T.	.01					1.44
Rome.....	Ohio.....															.21	.53		.16	.46			.85			.02						3.14	
Salamonia.....	Wabash.....								.12							1.29	.75		.45	.55			.16	1.51								5.03	
Salem.....	Ohio.....			.20												T.	.35		.60	.30			T.	.62			T.	.13	.95			3.15	
Scottsburg.....	E. Fork, White.															.29		1.02	.74				.75									3.75	
Seymour.....	do.....															T.	.28		.89	.13			.09	.68								2.82	
Shelbyville.....	do.....								T.							T.	.46		.30				.47			T.	.61	.58				2.39	
Shoals  .....	do.....															.49	.02		1.05				.75	.01								4.41	
Terre Haute.....	Wabash.....			.27					T.							.04	.18		.66	T.			.05	.45									2.27
Veedsburg.....	do.....			.49					.27							.06	.03		.51	.37			.03	.46	.01								4.95
Vevay.....	Ohio.....															.75		.40	.70				.50	2.00								4.95	
Vincennes  .....	Wabash.....				.10											1.00	T.		.80				.80									5.70	
Washington.....	W. Fork, White.			T.												.04	.38		.53	.06			.67			.01	1.64	.27				3.60	
Whitestown  .....	do.....			.23												.08	.41		1.19	.01			.81	.22	.01							3.56	
Winona Lake.....	Wabash.....			.15												.29	.06		.25	.95	T.		.59				T.	.60				2.32	
Worthington.....	W. Fork, White.					.02										.06	.51		.74	.22			.53				.90	1.13				4.11	
<b>Illinois.</b>																																	
Albion.....	Wabash.....															.36	.76		.80	.07			.17	.70								4.96	
Casey.....	do.....															.20		.90	.07				.08	.35								1.60	
Charleston.....	do.....				1.15											.19			1.42	.01			.39	.40			.01					3.57	
Danville.....	do.....			.62					.08							.05	.50		1.08	.34			.06	.31			.02						3.06
Equality.....	Ohio.....			T.												.89		1.19		.15			.25									5.42	
Fairfield.....	Wabash.....															T.	.58		.64	.08			.32	.60								3.53	
Flora.....	do.....			.06												T.	.07		1.31	.13			.17	.42								2.61	
Golconda.....	Ohio.....					T.										.14	.19		.56				.86									2.24	
Hoopeston.....	Wabash.....			.43	.03											.18	.58		.48	.10	T.		.19	.14								2.13	
M Leansboro  .....	Ohio.....				.03											.80			.64				.17	.85			.31	2.08				4.88	
Metropolis.....	do.....															.50			.65	.09			.95	.10			.28	.06				2.63	
Montrose.....	Wabash.....			.18												.03	.05		1.43	.06			.15	.25			.07	T.				2.22	
Mount Carmel.....	do.....				.12											.80			.76				.02	.98	.02		.02	2.52				5.24	
New Burnside  .....	Ohio.....															.90			.73				.25	.70		T.	.40	.52		T.		3.50	
Newton.....	Wabash.....															.18		1.26					.17	.24			.23	.02				2.10	
Olney  .....	do.....																															2.10	
Palestine.....	do.....				.07											.10	1.57		.89	.42			.09	.87			.88	.41				5.30	
Paris  .....	do.....			T.					.27							.43		.23	1.30				T.	.42								2.65	
Philo.....	do.....			T.												.35		.51					.32	.08			T.					1.26	
Rantoul  .....	do.....			.20												.17	.33		.17	.28			.26				T.					1.41	
Rileyville.....	Ohio.....			T.												.44		.80					.30	.66			3.44					5.64	
Shawneetown  .....	do.....															.29		.86					.10	.30			.20	1.85				3.60	
Tuscola.....	Wabash.....			.10	.02											.03	.12		.94	.09			.33	.09								1.72	
Urbana.....	do.....			.30												T.	.05	.47		.55			.33	.06								1.76	
<b>Kentucky.</b>																																	
Alpha.....	Cumberland.....															.45	T.		.50	1.01			2.51	T.								4.47	
Anchorage.....	Ohio.....			.11	.56			.29								.18	.42		1.14				.19	1.81			.18					4.88	
Bardtown  .....	Salt.....				1.40		T.									T.	.58		.98				.75	.38									

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>Kentucky—Contd.</b>																																
St. John	Salt Licking							T.							.15	.89	.18	.60					.28	.29			.30					2.60
Scott	Kentucky			.85	.06										.13	.55		T.	1.06			T.	.70		T.	.07						2.51
Shelby City	Salt														.65	.50	.05	.32			.05	.50	.45	T.	.04				.60		3.26	
Shelbyville	Cumberland			.09		T.	T.								.14	.59		T.	.72			.22	.51		T.	.10						3.05
Taylorsville	Licking														.90	.28	.23		.67				.18	.46			.03			.05		2.37
Williamsburg																																3.57
Williamstown																																2.75
<b>Tennessee.</b>																																
Ashwood	Tennessee						T.								.30	1.00		.73				.83	.35				T.					3.2
Benton	"do						T.				T.				T.	.53	T.	1.20					.94	6.65	.10		.05					3.47
Bird's Bridge	"do															.64	1.05						1.27					.38		.08		3.42
Bluff City	"do			.37	.29	.02									.13	.06		.38	.98					1.12	.02			.40		.12		3.89
Byrdstown	Cumberland															.05		.50				1.80						.40				2.75
Carthage	"do														.02	.28		.81					.52	.25						.12		2.00
Cedar Hill	"do				T.										.25	1.35		.20	.80			.55	.30		T.		.11					3.56
Celina	"do									.48						.33		1.30	.32				1.42	.42						.04		4.31
Charleston	Tennessee			.05		.72												1.40					.25	1.67						.07		4.16
Chattanooga	"do				.01										.21	.11	.21	.98				.08	.72	.02			.02					2.36
Clarksville	Cumberland					T.									.46	1.00		.04	.25			T.	.21				.42		</			

TABLE 2.—Daily precipitation for September, 1912. District No. 3—Continued.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Virginia.																																
Blacksburg.....	Kanawha.....			1.20				.49					.07			.03			2.03					T.	3.43	.52		.10				7.87
Burkes Garden.....	Tennessee.....													.10	T.	.03			.87				T.	2.00	T.		.50				3.37	
Elk Knob.....	do.....				.10	T.										.03			1.80	.01			.22	1.28		.92	.08		.02		4.56	
Ivanhoe II.....	Kanawha.....					.01	T.		.08					T.	.04	.02	T.		1.11	.70	T.	T.	T.	1.34	.74	.52	T.	.10			4.66	
Lebanon.....	Tennessee.....			1.40															1.60				1.50								4.50	
Max Meadows.....	Kanawha.....	T.						.25											2.05						1.97		.02				4.29	
Mendota II.....	Tennessee.....				.60	.05									.30		.10		.98	.65				1.45	.10		.22				4.45	
Mountain Lake.....	Kanawha.....													.25					1.30					3.70	1.10		.20				6.55	
Radford II.....	do.....			.10					T.						T.					.36	2.28				1.70	1.30	.40				6.14	
Speers Ferry II.....	Tennessee.....					1.18													1.07		.52			1.71	.24		.60	.20			5.52	
Wytheville.....	Wythe.....				.01		.38							.07					2.33	.01			.54	1.29	.11	.01	.08	.01			4.84	

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 3, Ohio Valley.

Date.	Pennsylvania.				West Virginia.												Ohio.											
	Greenville.		Pittsburgh.		Charleston.		Elkhorn.		Elkins.		Glennville.		Huntington. §§		Morgantown.		Parkersburg.		Wheeling. §§		Canton. §§		Cincinnati.		Columbus.		Dayton.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	92	62	89	68	91	70	86	63	87	71	93	69	89	70	86	71	93	71	94	64	92	68	92	70	91	71	91	73
2....	88	68	89	68	90	70	86	61	86	70	97	68	90	70	86	67	92	74	95	70	93	67	92	75	92	71	91	72
3....	86	68	86	71	90	70	86	60	86	63	94	66	90	70	87	67	88	71	86	69	84	69	88	73	83	70	84	68
4....	85	63	82	70	89	72	84	60	84	61	93	66	87	70	82	68	88	69	87	66	86	68	90	71	83	67	88	65
5....	91	63	86	69	88	68	83	63	88	57	95	63	87	69	88	65	89	70	90	60	90	67	90	70	89	68	91	66
6....	91	66	85	68	89	70	86	60	84	63	94	64	88	69	84	66	89	68	88	66	89	69	91	70	91	70	92	72
7....	85	58	88	67	90	71	87	61	87	61	98	66	89	71	88	64	92	68	93	67	86	65	95	71	88	66	92	67
8....	87	50	85	58	88	67	85	58	86	56	94	60	86	67	81	57	86	65	87	61	89	53	90	66	87	62	89	62
9....	89	55	86	61	90	63	86	58	88	53	96	60	88	65	88	67	91	60	86	59	92	59	93	69	90	63	93	64
10....	94	60	90	66	90	67	85	55	90	55	97	51	89	65	94	62	93	65	93	59	94	62	95	68	94	69	93	65
11....	79	62	81	63	88	64	85	56	85	56	95	55	88	63	86	65	91	64	88	64	81	64	91	67	83	61	85	61
12....	73	46	72	56	88	62	84	55	74	53	82	56	77	61	77	53	73	58	76	55	73	49	75	58	73	56	75	56
13....	80	41	82	54	83	56	77	54	76	50	87	51	80	53	85	51	84	50	84	50	82	45	86	50	82	55	81	54
14....	84	52	82	67	87	66	83	64	85	63	93	65	84	55	86	65	86	68	87	51	80	53	88	71	83	68	85	63
15....	82	54	84	69	86	69	83	70	85	60	94	63	78	57	86	70	86	70	85	66	78	65	88	70	76	67	79	68
16....	74	51	70	60	79	67	78	66	74	57	81	55	75	69	73	63	75	60	77	64	69	60	76	64	71	58	75	61
17....	78	36	79	53	82	62	82	54	82	55	89	54	79	56	84	54	82	53	82	54	78	46	83	59	80	54	78	56
18....	76	56	75	65	82	67	78	50	81	63	80	63	74	59	78	64	74	66	79	53	73	52	73	59	73	58	72	56
19....	70	51	69	57	77	62	81	48	69	47	76	55	70	57	70	61	70	54	72	56	68	49	67	52	66	51	65	49
20....	76	49	72	54	75	62	75	40	73	42	81	47	74	47	75	48	78	47	77	49	76	47	67	51	76	49	75	51
21....	80	46	80	57	80	52	76	47	82	41	89	64	79	51	83	50	83	50	83	50	83	47	85	57	82	54	81	54
22....	76	54	77	62	78	59	75	59	75	60	87	65	72	53	79	60	77	64	79	53	75	57	68	57	68	55	68	54
23....	66	60	67	60	75	63	71	57	64	59	84	59	74	54	71	60	71	62	88	58	60	53	71	54	67	54	70	50
24....	68	58	70	60	75	63	76	59	75	59	80	62	71	60	72	61	76	62	76	59	74	54	69	60	75	58	68	57
25....	80	54	80	60	82	60	78	59	80	59	89	60	80	57	83	50	83	57	82	59	80	56	85	59	83	57	82	58
26....	69	51	77	53	80	58	78	58	79	54	77	58	70	59	76	61	72	53	76	60	67	59	69	49	68	45	66	46
27....	61	38	61	45	66	48	69	49	63	42	70	44	71	45	63	49	63	44	67	42	62	36	64	44	62	40	63	40
28....	67	33	67	44	68	43	69	42	73	40	80	41	72	46	69	48	73	45	72	42	69	36	72	47	68	45	70	42
29....	56	40	57	44	69	57	70	41	66	43	76	43	64	44	63	50	62	47	61	43	59	41	60	48	56	42	56	43
30....	61	32	59	38	66	43	68	42	57	36	70	39	60	44	69	46	61	41	63	36	59	33	62	43	60	38	61	38
Mns..	78.1	52.6	77.6	59.6	82.0	62.0	79.7	55.6	78.8	55.0	86.7	57.7	79.2	59.2	79.7	59.4	80.5	60.0	81.8	56.9	78.0	55.0	80.7	61.1	78.0	58.1	78.6	57.7

Date.	Ohio.				Indiana.												Kentucky.											
	Marion.		Waverly. §§		Butlerville.		Evansville.		Indianapolis.		Kokomo.		Rockville.		Worthington.		Philo, Ill.		Beattyville. §§		Bowling Green. §§		Earlington. §§		Greensburg. §§		Lexington.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	94	72	93	67	92	72	91	74	89	74	91	74	94	73	92	73	92	74	92	65	97	69	100	74	95	68	89	72
2....	94	71	94	68	92	72	91	74	91	68	83	72	96	71	93	72	93	72	93	66	97	69	99	70	95	64	89	72
3....	87	69	92	68	94	66	93	75	86	68	87	67	94	67	93	70	91	66	96	67	98	68	100	70	95	65	88	68
4....	84	65	87	68	93	68	94	73	90	70	93	66	96	68	94	71	95	68	93	67	98	68	100	69	95	64	87	68
5....	93	66	89	67	95	69	93	76	93	73	94	69	97	69	95	71	96	69	95	66	96	69	100	69	100	67	89	71
6....	90	66	91	66	96	71	94	76	93	73	93	66	98	67	94	70	97	66	91	65	95	68	101	68	98	65	89	71
7....	88	67	94	69	97	67	94	75	91	69	84	66	95	66	95	68	94	65	95	65	99	68	102	66	96	65	90	70
8....	92	52	88	61	91	64	93	71	90	66	91	60	95	68	92	66	95	64	89	60	96	67	101	66	100	64	87	65
9....	96	58	93	58	95	65	93	71	92	69	93	61	95	63	93	66	93	64	92	61	98	65	101	64	100	55	90	67
10....	94	62	92	59	96	64	95	71	94	70	93	60	96	62	95	65	96	58	95	60	100	64	103	64	97	61	90	70
11....	85	64	92	60	92	63	92	69	83	58	92	64	86	64	89	65	84	65	92	59	98	62	99	62	97	58	91	68
12....	77	52	76	54	81	53	77	58	76	54	76	46	72	56	78	54	76	49	76	61	86	61	86	58	90	60	75	59
13....	84	46	84	47	86	48	85	58	79	55	79	45	83	54	82	50	82	44	85	49	94	54	94	50	98	52	85	53
14....	85	62	89	49	85	62	86	71	83	62	86	61	86	62	82	59	88	62	86	58	91	66	91	60	92	67	87	70
15....	76	67	78	68	86	67	86	70	84	65	82	68	87	69	85	70	84	66	78	67	88	68	89	69	88	68	79	69
16....	74	58	78	65	81	61	81	66	77	62	78	56	85	62	80	62	79	59	78	64	86	66	86	67	88	62	75	64
17....	82	48	82	50	82	59	78	66	69	60	69	58	75	60	71	62	68	62	85	56	90	60	87	61	91	56	83	59
18....	71	61	79	51	73	60	70	57	69	51	69	58	70	56	70	59	65	54	74	58	76	62	77	62	76	64	71	59
19....	66	48	70	49	69	47	71	52	67	47	68	49	72	47	70	46	70	46	85	52	76	47	75	43	77	47	66	51
20....	79	48	76	44	78	49	81	55	75</																			

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 3—Continued.

Date.	Kentucky.						Tennessee.												Decatur, Ala. §§		Asheville, N. C.		Virginia.					
	Louisville.		Maysville. §§		Williamsburg. §§		Chattanooga.		Johnson City. §§		Knoxville.		Nashville.		Palmetto.		Sparta.						Waynesboro.		Blacksburg.		Wytheville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1....	93	76	96	69	94	67	94	70	94	65	93	72	93	75	95	78	91	67	92	69	93	73	87	63	90	62	87	67
2....	93	75	97	67	95	63	92	72	93	67	93	72	92	72	94	74	92	67	93	68	92	72	85	63	89	62	86	64
3....	94	69	95	67	94	67	94	70	92	65	94	70	93	71	93	68	91	68	93	66	92	70	86	63	90	59	85	62
4....	90	71	94	66	93	68	93	70	92	66	92	70	94	73	96	69	92	68	95	67	93	71	82	65	82	63	80	64
5....	93	73	95	65	91	67	88	70	89	66	90	69	92	72	95	70	91	67	93	67	93	72	82	67	81	64	80	64
6....	94	74	97	64	91	61	91	69	92	65	90	69	93	72	94	68	91	66	93	66	92	73	84	67	90	61	87	62
7....	94	75	97	66	94	67	92	70	90	63	92	70	94	70	96	67	94	66	94	65	92	72	83	62	89	60	88	61
8....	92	69	94	60	92	64	90	69	93	60	91	68	95	72	96	67	93	66	95	66	93	71	84	60	85	59	84	57
9....	95	70	97	64	93	65	90	70	93	61	92	68	94	71	94	66	94	64	95	65	93	71	83	59	88	55	86	57
10....	95	69	99	61	92	60	87	68	92	57	91	66	94	70	94	65	93	60	93	64	91	67	75	58	87	51	86	52
11....	94	68	97	59	90	60	89	70	92	62	90	69	93	66	93	66	92	60	92	63	90	69	81	63	88	52	84	55
12....	77	59	81	56	89	57	89	69	87	62	87	69	86	69	93	69	86	64	88	68	90	68	83	63	83	58	81	60
13....	86	56	90	49	92	56	86	69	87	63	89	65	90	62	93	61	90	61	90	59	92	65	71	64	69	61	67	59
14....	89	71	94	49	92	60	84	71	89	63	90	68	88	71	89	71	90	74	85	70	85	67	78	65	79	60	79	61
15....	86	71	84	67	88	65	88	71	89	71	87	72	87	70	87	74	85	72	88	69	88	73	82	67	84	63	83	68
16....	78	66	80	66	85	63	88	69	88	69	87	68	86	71	87	71	86	65	85	71	88	73	81	65	78	68	76	57
17....	85	63	90	55	92	60	88	64	93	57	91	63	87	64	87	63	89	60	87	71	90	68	81	60	82	54	80	54
18....	75	59	77	55	72	62	75	65	79	63	74	65	75	61	79	66	73	66	78	65	80	68	80	64	81	62	77	62
19....	70	52	73	47	76	55	76	57	79	63	76	56	72	53	76	52	74	55	74	49	68	56	73	54	72	56	71	49
20....	80	52	84	44	84	46	79	51	79	46	80	51	83	50	75	48	82	46	83	45	86	51	77	44	77	42	77	42
21....	82	57	91	45	70	47	81	57	78	49	84	54	80	57	79	60	84	52	82	59	80	53	75	48	77	43	75	44
22....	67	57	70	45	72	49	74	66	74	54	73	65	71	60	75	63	80	60	72	62	77	66	65	60	69	55	64	61
23....	74	51	65	56	75	50	78	65	73	54	77	63	72	56	74	58	77	60	74	52	78	62	72	59	63	59	62	58
24....	78	62	75	56	85	59	84	61	75	59	83	62	82	61	85	53	83	60	83	56	85	60	80	62	73	59	75	58
25....	85	62	90	55	87	60	85	63	84	56	85	62	84	63	85	62	86	58	85	60	87	61	82	57	80	56	80	51
26....	65	49	67	55	69	67	78	61	70	62	74	58	65	54	71	56	74	55	72	59	68	64	72	57	70	59	69	57
27....	65	44	69	37	70	50	73	58	69	54	70	56	72	50	73	49	73	52	74	48	74	56	70	59	74	53	60	49
28....	73	47	77	38	78	43	71	59	79	50	77	54	78	50	78	50	80	48	80	48	75	54	66	57	65	49	68	51
29....	63	47	67	41	80	49	75	61	71	50	72	58	71	56	71	60	72	60	80	48	74	55	68	56	69	49	68	49
30....	63	43	68	36	82	48	72	54	65	46	68	52	66	48	70	46	67	45	70	46	71	54	63	52	61	42	60	43
Mns..	82.3	61.9	85.0	55.3	85.2	58.5	84.1	65.3	84.0	59.6	84.4	64.1	84.1	63.7	85.6	63.0	84.8	61.1	85.3	61.0	85.0	65.2	77.7	60.1	78.8	56.5	76.8	56.6

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 4, THE LAKE REGION.

Prof. HENRY J. COX, District Editor.

## GENERAL SUMMARY.

As a rule, the month in the Lake Region was warmer and wetter than is usual for September. Except in the southwestern sections, the number of cloudy and rainy days was unusually large, and as a result of the frequent rains outdoor work in many localities was seriously hindered and grain and root crops suffered considerable injury through rotting. Thunderstorms were comparatively frequent, especially during the first part of the month, when temperatures were high, and in a number of instances local damage of greater or less extent was reported. On the 15th a tornado passed north of Syracuse, N. Y., causing the loss of three lives and great destruction of property. A report descriptive of this storm follows in a separate article. Relative humidity, which had been excessive during the two preceding months, remained high during September, especially over the northern and eastern portions of the district.

The following table summarizes the chief features of meteorological interest in the various portions of the district:

Portions of States.	Mean temperature.	Departure.	Mean daily range.	Mean precipitation.	Departure.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days.				Prevailing wind direction.
								With 0.01 inch or more.	Clear.	Partly cloudy.	Cloudy.	
Minnesota.....	75.6	+0.3	16.0	2.71	-1.36	1.16	1.4	8	11	9	10	ne
Wisconsin.....	60.6	+0.6	14.8	4.39	+1.13	3.30	T.	11	14	8	8	sw.
Illinois.....	67.0	+3.1	16.3	4.18	+1.06	2.98	0	11	14	8	8	sw.
Indiana.....	66.6	+1.7	20.3	3.07	-0.12	2.24	0	8	16	8	6	sw.
Upper Michigan.....	57.2	+1.3	15.5	3.19	+0.11	2.40	T.	11	11	8	11	w.
Lower Michigan.....	63.2	+1.5	17.2	3.49	+0.68	2.40	T.	10	10	11	9	sw.
Ohio.....	66.8	+1.8	15.8	3.27	+0.31	3.10	0	9	14	9	7	sw.
Pennsylvania.....	66.2	+2.3	13.4	4.59	+1.10	1.43	0	13	7	13	10	s.
New York.....	60.9	+0.6	16.0	4.97	+2.10	2.48	T.	15	8	10	12	sw.
Vermont.....	57.2	-0.2	17.5	5.29	+2.28	2.09	T.	17	6	10	14	s.

## TEMPERATURE.

Over the southern and central portions of the district the monthly mean temperatures averaged between 1° and 2° above the normal for the season, the excess decreasing thence to values somewhat below normal over the western Lake Superior region and also over the sections of northeastern New York and the Champlain Valley. The absolute range in temperature for the district was 82°—from 100°, at Howe, Ind., on the 9th to 18°, at Watersmeet, in Upper Michigan, on the 28th.

Warm weather, which prevailed over the southern and middle portions of the district at the opening of the month, became general by the 3d, and temperatures continued high thereafter until the end of the first decade. The warmest weather of the month occurred during this time, which, in fact, was in many localities

the hottest 10-day period of the summer. The prevailing high humidity, together with the high temperature caused pronounced sultriness, and occasioned a number of cases of prostrations, especially in the larger cities.

After the first decade the following two weeks were marked by moderate temperatures, with no sharp or sudden alterations, but a decided change to cooler weather occurred after the 25th. Frosts or freezing temperatures were experienced in practically all portions of the district during the closing days of the month, being destructive over the northern portions of the Lake region, but as a rule causing only slight damage over southern and eastern sections.

## PRECIPITATION.

Precipitation was quite unevenly distributed in amount being exceptionally heavy in areas to the west of Lake Michigan and in the extreme eastern portions of the district, while it was below normal in the western Lake Superior region and in sections to the east and south of Lake Erie, as well as in localities of Lower Michigan. On the average the greatest amounts of precipitation fell over eastern New York and the Champlain Valley, where the totals for the month exceeded the September normal by more than 2 inches.

In point of time precipitation was frequent in practically all portions of the district, and especially so during the last two weeks. There was, moreover, no day during the entire month on which precipitation did not occur in some portion of the Lake region, while the 1st and 2d, 4th and 5th, 8th to 11th, 13th to 23d, and 25th to 30th were periods of quite heavy precipitation, more or less general in extent.

During the cold spell of the last week snow fell at a number of stations over the extreme northern and eastern sections, but was generally inappreciable in amount, except in northeastern Minnesota.

## SEPTEMBER, 1912—LAKE LEVELS.

The following data are from the report of the United States Lake Survey:

	Lake Superior.	Lakes Michigan and Huron.	Lake Erie.	Lake Ontario.
Above tidewater at New York.....	Feet. 602.53	Feet. 580.67	Feet. 572.48	Feet. 246.38
Above or below:				
Stage of August, 1912.....	+0.04	+0.09	+0.03	-0.28
Stage of September, 1911.....	+0.35	+1.03	+0.96	+1.50
Mean stage September last 10 years.....	-0.27	-0.19	+0.07	+0.36
Highest recorded stage.....	-1.55	-2.76	-1.46	-1.23
Lowest recorded stage.....	+1.04	+0.95	+1.20	+2.38
Probable change during October.....	0.00	-0.20	-0.20	-0.20

**TORNADO NEAR SYRACUSE, N. Y.**

By MORGAN R. SANFORD, Local Forecaster.

A violent and destructive tornado passed from west to east about 2 miles north of the city line and 5 miles north of the Weather Bureau office in Syracuse, N. Y., at 5.25 p. m. Sunday, September 15, 1912. At the local office the barometer fell with the approach of a low-pressure area that was over Indiana in the morning from 29.47 inches at 8 a. m. to 29.18 inches at 5 p. m., when it rose quickly 0.05 inch and then fell slowly to 29.18 inches at 10 p. m., after which it rose steadily. The weather map based on the telegraphic reports at 8 p. m. indicated that the center of the western depression had advanced from Indiana to northern New York during the preceding 12 hours. The temperature ranged between 75° and 80° during the afternoon, but fell about 10° between 5 and 6 o'clock. The wind had been very light from the east and south for 12 hours, but shifted to northwest at 5.15 p. m. and attained a velocity of 18 miles per hour and then became light again soon after 6 p. m. The sky was clear in the morning, followed by increasing cloudiness and thunderstorm conditions in the afternoon, with occasional light rain; and steady rain began at 5.45 and continued until 7.15 p. m., during which time 0.55 inch of rain fell. The day was exceedingly humid and oppressive.

In the vicinity of Cross Lake a severe thunderstorm was observed at about 4 p. m., and it first attained destructive violence when a few miles west of Long Branch, where buildings were damaged and trees blown down. It then continued eastward, either uprooting or breaking maple, oak, and chestnut trees, many of them more than a foot in diameter, and destroying or damaging about 90 buildings, killing live stock, injuring 40 persons, and causing the death of 3. The path of destruction was about 10 miles long and 400 to 600 feet wide, although seeming wider in places on account of occasional curves in the path of advance.

Some observations were recorded by Mr. A. Charles Armstrong, of Warner, N. Y., who estimated that the storm advanced about 7 miles between 4.10 and 4.45 p. m. It was passing 2 miles north of him when the first building was unroofed at 4.35 p. m. It was then one-fourth mile in length and took about one minute to pass a given point. His description would indicate a large anvil-shaped cloud above, with black muff-shaped mass below, rotating upward in front with great rapidity. Lightning played from the overhanging cloud in front of rotating mass, and rain followed. A shower that was entirely separate, and following at a distance of 3 or 4 miles behind the other, passed over the observer at 4.45 p. m. and cut off the view.

The greatest damage was done at Long Branch, a pleasure resort on the outlet of Onondaga Lake, 7 miles northwest from the common center in Syracuse and 3 miles from the New York State Fair Grounds. At that place hundreds of trees were blown down, several buildings damaged, the trolley station carried away and entirely destroyed, two cars loaded with passengers about to return to the city were overturned and about 30 people injured and 2 men, William Mathewson and George Dopp, were killed. Continuing up the outlet, the Syracuse University boathouse was completely wrecked and all boats and oars destroyed. The tornado then

passed over the foot of Onondaga Lake, damaging boats, boathouses, and cottages, and crossed the fields to the Cold Springs Road, along which buildings were damaged and fruit and shade trees broken. The substantial farm buildings owned by Thomas Bennett, about 1 mile northwest of Liverpool, were completely destroyed. The side walls and partitions of the house were swept from the floor structure and sills, which were moved southward on the cellar walls about half the width of the building. The family in the house consisted of the father, mother, and invalid daughter. The father and mother were attempting to close the windows on the second floor when the storm struck them. Then Mrs. Bennett was carried through a west window and was afterwards found in a shade tree which had fallen with its top to the south, and Mr. Bennett landed on ground to the north of the house, but the daughter was found unconscious on the north wall of the cellar. The path of destruction continued across the Phoenix and Clay Roads and the Syracuse & Watertown Branch of the New York Central Railroad, past the Waterbury schoolhouse to Pitcher Hill, about 5 miles east of Long Branch, where Charles Chapman, in attempting to protect his store, was hit by flying pieces of wreckage and killed. Here many buildings were carried away. The home of U. H. Wendell was lifted from its foundations, turned part way around, inverted, and deposited almost on its former site with roof downward, and the family escaped from a window by walking on the ceiling. The storm played many peculiar pranks and caused many thrilling experiences, but only a few can be mentioned in this connection. The loss in buildings, live stock, trees, and crops will probably exceed \$100,000.

From his home on the Cicero Plank Road, Mr. J. C. Thorpe observed the tornado as it passed 1,000 feet north of him at 5.25 p. m. At that time the electric storm had separated and run ahead and had entirely passed before the tornado arrived. The funnel cloud could be plainly seen as a grayish, swaying body, pendant from a darker mass from which debris could be seen spreading out above. In the distance it had resembled the smoke arising from a burning building. The tornado was followed by a heavy rain. One near the path of the storm heard a rushing, roaring sound, but others in the wreckage heard a shriek and roar in which the breaking of trees and buildings resembled musketry, and one mentioned an outward pressure and a bursting sensation in the ears.

A somewhat sinuous path was described between Long Branch and Pitcher Hill, but the general direction was south 87° east, and in general on the extreme right the trees fell with their tops to the east and on the extreme left with their tops to the west. The confusion was greater near the central line, where as many as five tree trunks were sometimes piled one upon another at different angles. Just at the north of the line of destruction at Long Branch a number of large trees fell with their tops to the south, and at another point, about 4 miles farther east, fruit and shade trees were broken that stood 200 feet north of the path of the tornado. It is reported that a violent north wind struck the latter place just before the tornado passed.

This is the first instance known of a violent tornado in this immediate vicinity, and it is remarkable that, although several hundred persons were in the path of the storm, only three were killed.

**SEICHES IN LOWER LAKE MICHIGAN IN MAY, 1912.**

By W. R. BORMANN, Assistant Observer, Milwaukee, Wis.

The hydrographic records made at Milwaukee and Chicago during May, 1912, under the supervision of the U. S. Lake Survey Office, indicate the occurrence of unusually marked seiches in lower Lake Michigan on the 19th, 20th, and 21st. It is my intention to correlate if possible, these hydrographic records with the records of atmospheric conditions which prevailed during that period at Milwaukee, Madison, Grand Haven, and Chicago. This will afford arguments for making deductions as to the probable cause of these unusually large and rapid fluctuations in the lake level in the vicinity of Milwaukee and Chicago.

The gage from which the hydrographic records at Milwaukee were obtained is stationed at the end of one of two nearly parallel piers, 350 feet apart, which project in an easterly direction from the middle of the shore of the bay toward the center of the bay, and are 1,800 feet in length. These piers form an outlet for the Milwaukee River which empties into the bay. The bay has a lateral depth of about  $1\frac{1}{2}$  miles, measuring from a line drawn between the two extreme ends, the line between the extremities being about  $5\frac{1}{2}$  miles long. A breakwater extends southward from near the northern extremity and affords a protection for nearly half the bay. Thus it will be seen that the location of the gage is a good one for obtaining measurements of the water level in Milwaukee Bay.

The two principal meteorological elements advanced as being factors in the causes of seiches are the combined action of velocity and direction of the wind, and large and sharp fluctuations in atmospheric pressure.

An examination of the wind records made at near-by stations during this period seems to indicate that the wind was not the principal factor in the production of these seiches. The velocities during this period were mostly light to moderate, and no severe gusts of wind were recorded. That a higher level of the water surface existed at Milwaukee and Chicago during the latter part of the period of May 18 to 21, inclusive, is shown by the hydrographs of those places. This was doubtless due to the fact that onshore winds prevailed during a greater part of the period in question. In addition to the change in the general level, due to onshore winds, it is probable that sudden variations in the direction and velocity of these winds may have constituted impulses which, added to and working in harmony with impulses caused by rapid variations in atmospheric pressure, operated to increase the amplitude of oscillation in the water level to a considerable extent.

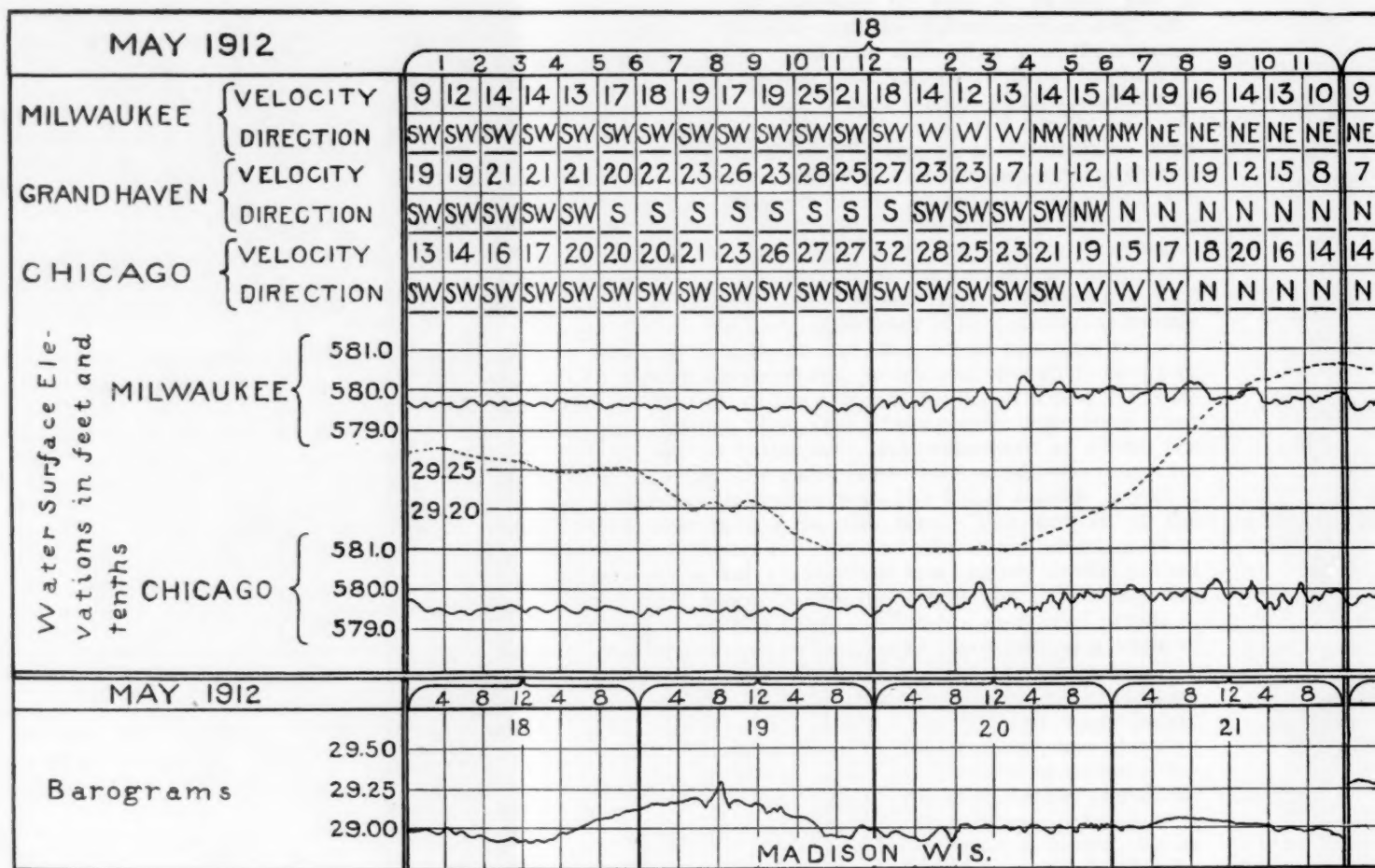
While the records indicate that the principal cause of these seiches was the variation in atmospheric pressure during this period, it is not believed that the large oscillations in the water level were due entirely to individual momentary differences in atmospheric pressure over the water surface, but were due rather to the cumulative effect of a series of such differences timed at proper intervals so that each impulse thus given to the wave augmented its movement to some extent, finally producing oscillations of large amplitude. The greatest fall in pressure recorded within one hour at Milwaukee during this period, as shown by the barograph trace, could not of itself have affected the water sufficiently to cause sudden rises of nearly two feet, as are shown by the hydrograph of that place. Several very decided and rapid

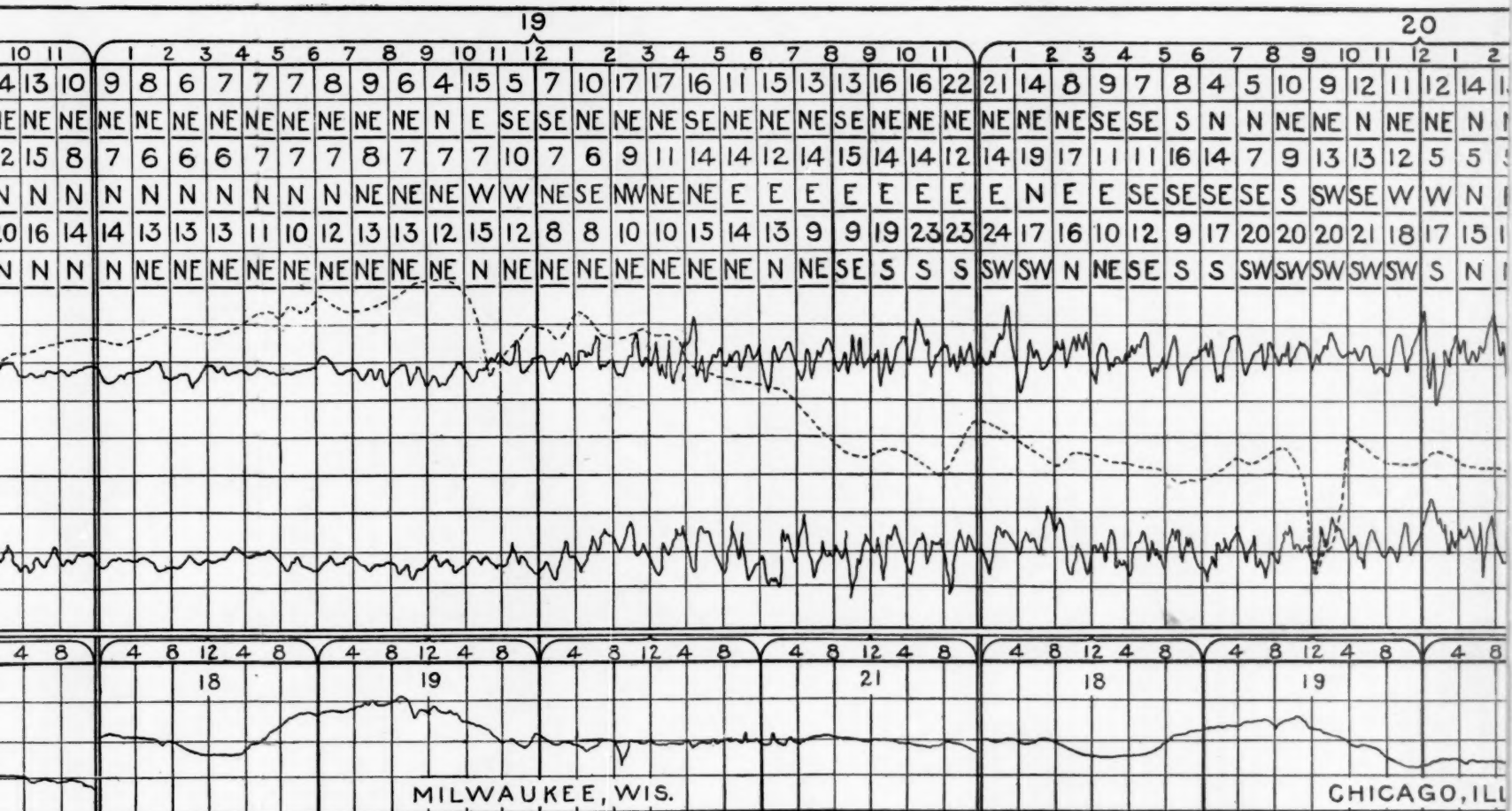
changes in atmospheric pressure were recorded during this period of seiches, the most marked of which occurred during the forenoon of the 20th. There was a rapid fall of 0.20 inch in atmospheric pressure at 9 a. m. on that day, which in water equivalent would equal about 0.22 of a foot, and assuming that the atmospheric pressure over the bay at that time was 0.20 of an inch lower than that over the lake, the effect of this difference in pressure between the two places would have raised the water level in the harbor about 0.2 of a foot. To this increase in water level must be added the effect the contour of the shore of the bay would have in raising the level still further, due to the water's being confined to a space of limited area and depth. But the hydrographic record made at Milwaukee shows among other rapid changes, two quick rises of nearly two feet in the water level which were immediately followed by falls of  $2\frac{1}{2}$  feet, and it does not seem possible that this difference in atmospheric pressure, granting that the difference was maintained long enough to permit the waters to fully respond to it, could of itself have caused seiches of this magnitude.

The most reasonable evidence offered for the solution of this problem apparently lies in the unusually large number of rapid oscillations in atmospheric pressure, following the large variations already noted, which are shown by the barograph traces from stations in the vicinity of Milwaukee to have occurred during this period. Let us assume that the sudden fall in atmospheric pressure of 0.18 of an inch, as recorded at Milwaukee, and indicated by the barograph trace of that station as having occurred at 9 a. m. on the 19th, set in motion a wave of considerable dimensions, which on entering the bay raised the level of the water there 0.2 of a foot. Let us assume further that this atmospheric depression then passed out over the lake, approximately at about the same time that the water in the bay, which was in a state of unstable equilibrium with the water outside, began a return current toward the lake. The arrival of the barometric depression over the lake would have the effect of raising the water level there in a manner similar to that which took place in the bay when the depression was centered over that place. Thus the combined action of these two forces would probably have formed a wave of considerable head outside the bay. Furthermore, the barograph trace indicates that a sudden increase in atmospheric pressure took place over the bay immediately following the depression mentioned above, and it seems reasonable to assume that this increase in pressure occurred at about the same time that the other two forces were operating. If this rise in atmospheric pressure over the bay did occur at the proper time, it would, by its depressing effect on the water in the bay, still further increase the height of the wave. It is probable that this wave now would have sufficient energy to set in motion a series of slow surges in and out of the bay which, if no impulses were received to further augment its movement, would gradually diminish in extent due to the frictional resistance of the water particles one upon another and on surrounding media.

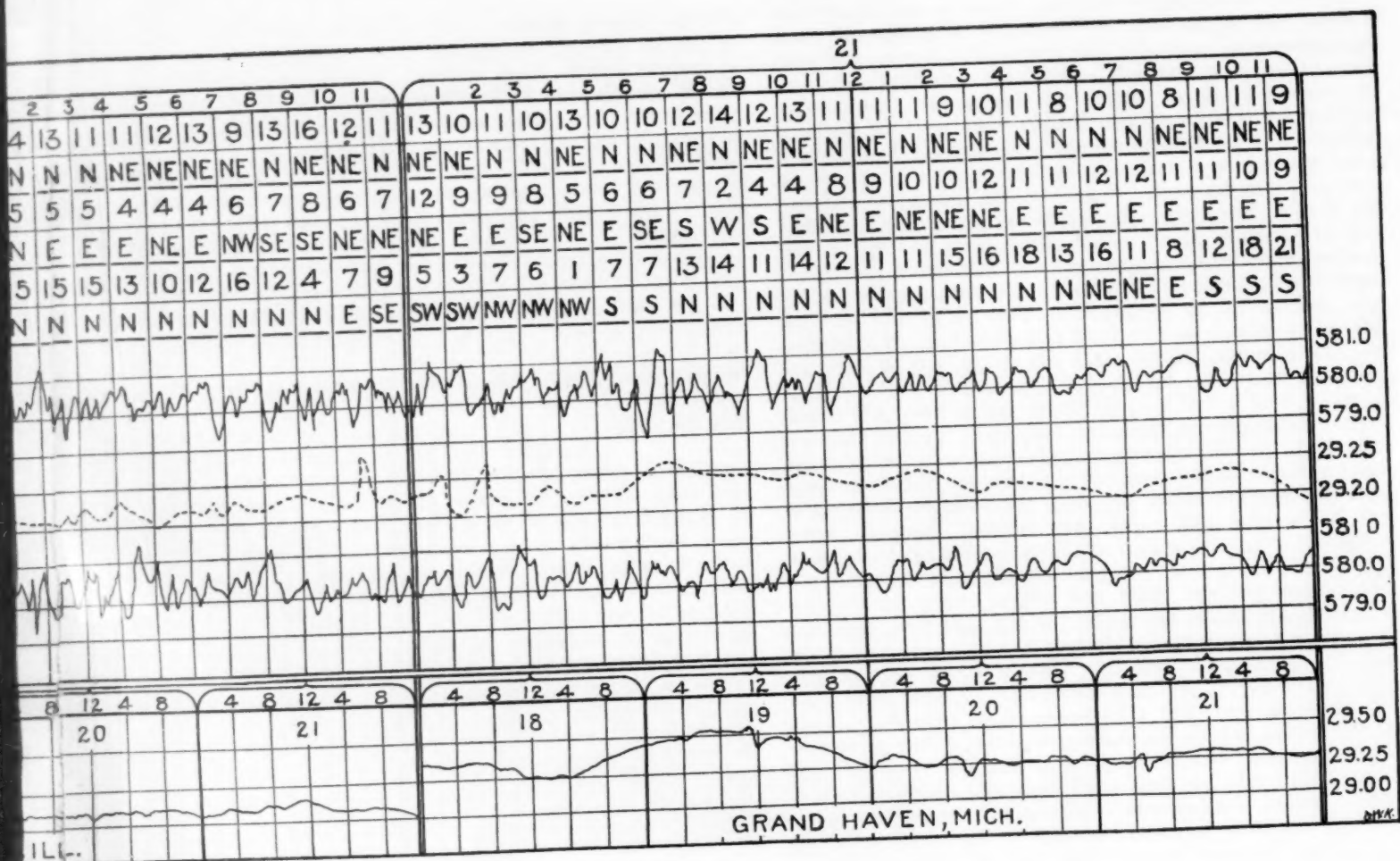
But the Milwaukee barograph trace shows a series of sharp rises and falls in pressure following the unusually large change at 9 a. m. on the 19th, and the hydrographic record indicates that the amplitude of oscillation of this great wave increased after 9 a. m. of that day, the extremes in the stage of water being recorded in the late afternoon. It seems very probable that the majority of the additional variations in atmospheric







tions in water level of lower Lake Michigan, and records of wind direction and velocity, and of atmospheric pressure, during the period, May 18-21, 1912. The dotted line represents the Milwaukee barogram



GRAND HAVEN, MICH.

pressure, as recorded by the barograph, were so timed as to work in harmony with the rhythmic movement of this immense wave, although there probably were some oscillations in the pressure that worked out of harmony with its movement. Also that the harmonious artificial impulses thus received by the water surface caused the wave to grow larger and larger, not in regular progression but in an irregular manner, until the morning of the 20th when the level of the water in the bay reached the highest point recorded during this series, and was immediately followed by a rapid fall of 2.5 feet. If the majority of these oscillations in atmospheric pressure following the first primary change, had been so timed as to work out of harmony with the rhythmic movement of the wave, every change so timed would have had a nihilating effect on the head and amplitude of oscillation of the wave and stages approaching the normal would probably have been recorded.

But the hydrograph shows a variation in the amplitude of oscillation of the wave, that is, large sudden rises and falls in the stage were interspersed with oscillations of limited extent. This is probably explained by the fact that the wave in its travel encountered barometric variations that worked in opposition, by a variable extent, to the wave's rhythmic movement and thus reduced the head of the wave by that amount. To these effects must also be added the influence of variations in wind direction and velocity, which, as previously indicated, would also increase or decrease the amplitude of oscillation of the wave.

A comparison of the barograph trace with the hydrograph as made at Milwaukee shows that some large, sudden changes in atmospheric pressure were not accompanied by corresponding increases in the amplitude of oscillation of the wave at that particular time, while some smaller changes in pressure, which probably were timed at more proper intervals to agree with the rhythmic movement of the wave, were followed by some of the most pronounced seiches. This was probably due to the fact that the sudden, large changes in atmospheric pressure were so timed with respect to the movement of the wave as to give a modified impulse. For example, if the wave were approaching the bay at a time when a sudden sharp fall in atmospheric pressure were approaching from the west, they both might have been so timed as to work exactly in harmony and produced a very high stage, but if the barometric pressure over the bay had declined only half way at a time when the water reached its maximum stage in the bay, the further fall in barometer over the bay would have had a reverse effect on the water level there, as the wave would already have begun to recede. In contrast to this, a smaller sharp fall in pressure might have arrived over the bay at such a time as to give the wave the full benefit of its effect for a higher stage.

The arguments in this article appear to be strongly supported by a comparison of the barograph trace with the hydrograph as made at Milwaukee. The barograph trace shows that, in general, sharp fluctuations in pressure began several hours before the largest fluctu-

ations in the water level, and ceased several hours before the latter decreased in amplitude of oscillation.

The limited data found available on this subject offers the following conclusions:

That these seiches were caused by the movement of an immense wave or surge in and out of the bay.

That an unusually rapid and large change in atmospheric pressure probably gave the wave its original energy for the production of high stages in the bay.

That this wave reached such large proportions because of the fact that the majority of impulses due to atmospheric elements were so timed as to operate in harmony with the wave's rhythmic movement.

That the variations in atmospheric pressure apparently afford the best argument as the principal cause of these seiches.

The following notes on wind direction and velocity at Milwaukee during the period may be of interest.

*May 18.*—Wind steady southwest, occasionally into west or northwest, until 1 p. m., when it shifted to west, and to northwest at 4 p. m., through north into northeast by 6.50 p. m. and held steady northeast until past midnight, velocities light to moderate and steady, except light squalls between 10 and 11.15 a. m.; maximum velocity for 5 minute period being 29 miles.

*May 19.*—Wind light and steady northeast until 8.30 a. m., when it shifted to southeast through east, and was variable 9 a. m. to 10 a. m. with very light velocities. At 10.20 a. m. there was a sudden squall from east, 31 miles in 5 minutes, 35 miles in 1 minute, but wind soon again became light, held northeast to southeast until 1 p. m., after which quite steady northeast until midnight. Velocities were steady and increasing until 11.35 p. m., when 27 miles occurred in 5 minutes.

*May 20.*—First two hours northeast with some east and southeast, velocity decreasing; 2 to 3 a. m. wind variable, rather steady southeast 3 to 5 a. m., south at 5.15, and southwest at 5.45 a. m., then mostly north until 8.30 and northeast to 8.55, when it shifted suddenly to southeast, accompanied by a light puff at 8.50 of 24 miles in 5 minutes; 9 to 10 a. m. wind variable and light; 10 to 11 mostly north with occasional northeast and northwest; 11 a. m. to 1 p. m. northeast, after which it shifted between north and northeast until midnight. Velocity light and steady at all times, even during a thunderstorm at 10.20 p. m., when wind shifted suddenly to west for a few minutes.

*May 21.*—Light velocities throughout 24 hours and no squalls; shifted between north and northeast until 8 p. m., after which it held quite steady northeast. During the early morning hours there were occasional shifts into northwest, but these were short in duration.

NOTE.—In connection with the high stages and large fluctuations in the water level of the bay on those days, as shown by the hydrograph at Milwaukee, the effect of the contour of the shore of the bay must not be overlooked. The immense amount of water which forms a wave with even a small head when out in the lake, upon entering the bay, will raise the level of the water there considerably, due to the fact that the water is forced into a space of limited area and depth, and that the momentum of such a wave is so great that it piles the water up in the bay to high levels before its inertia is overcome.

TABLE 1.—Climatological data for September, 1912. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Minnesota.</b>																				
Cloquet.	Carlton.	800	1	54.1	—	90	5	24	28	38	2.21	—	0.83	—	6	7	10	13	e.	W. H. Kenety.
Duluth.	St. Louis.	1,133	41	54.8	— 1.9	80	7	30	29	27	1.80	— 1.75	0.76	0.1	11	11	11	8	ne.	U. S. Weather Bureau.
Floodwood.	do.	1,257	6	—	—	—	—	—	—	—	2.01	—	0.85	—	5	13	2	15	—	M. H. Schussler.
Stephens Mine.	do.	1,500	5	55.6	—	91	6	23	27	39	3.56	—	0.80	2.0	8	16	5	9	w.	Oliver Iron Mining Co.
Two Harbors.	Lake.	614	18	57.0	+ 0.8	82	6†	27	27†	30	2.18	— 2.44	0.80	0	9	9	16	5	ne.	G. W. Watts.
Virginia.	St. Louis.	1,434	18	56.3	+ 1.9	90	5	29	28	37	4.48	+ 0.12	1.16	3.5	10	8	9	13	s.	Oliver Iron Mining Co.
<b>Wisconsin.</b>																				
Appleton.	Outagamie.	795	11	62.6	+ 0.5	94	9	32	29	28	2.88	+ 0.16	0.65	0	14	16	9	5	sw.	Wm. O. Thiede.
Ashland.	Ashland.	647	21	58.1	— 2.3	94	5	26	28	38	1.00	— 2.13	0.43	0	9	18	4	8	sw.	Sam Wheeler.
Bayfield.	Bayfield.	635	3	59.4	—	86	5	33	27	28	4.46	—	1.58	T.	10	19	0	11	nw.	Frank Kern.
Cecil.	Shawano.	804	14	61.1	+ 1.7	91	5	30	29	30	4.46	+ 1.21	1.33	0	9	15	9	6	se.	Louis W. Schmidt.
Cornucopia.	Bayfield.	0	0	56.4	—	82	4	30	28	31	2.22	—	0.72	T.	12	13	10	7	ne.	Reed Fruit Co.
Crandon.	Forest.	1,060	17	57.8	+ 0.0	88	5†	26	28	34	2.70	— 0.86	1.46	T.	11	14	4	12	se.	Frank Shoemaker.
Florence.	Florence.	1,293	21	56.8 <sup>b</sup>	+ 0.2	90 <sup>b</sup>	9	24 <sup>b</sup>	28	38 <sup>b</sup>	2.25	— 1.02	0.66	T.	7	14	4	12	ne.	Fred S. Evans.
Fond du Lac.	Fond du Lac.	800	26	63.3	+ 2.1	93	5†	27	29	35	4.91	+ 2.05	0.95	T.	13	18	6	6	w.	Edward A. Seeley.
Grand River Locks.	Marquette.	770	16	62.4	—	92	9†	29	29	29	5.52	+ 1.66	1.07	0	13	7	14	9	w.	Jerry Parkinson.
Green Bay.	Brown.	617	26	61.3	+ 2.1	90	9	35	29†	25	4.70	+ 1.58	1.01	0	11	10	12	8	s.	U. S. Weather Bureau.
High Falls.	Marquette.	810	0	59.1	—	92	9	25	29	36	4.46	—	1.79	0	13	18	7	5	se.	No. Hydro-Elec. Power Co.
Iron River.	Bayfield.	1,096	3	57.2	—	95	5	27	27	35	2.83	—	0.70	0	13	18	7	5	s.	Winfield E. Tripp.
Kewaunee.	Kewaunee.	590	3	60.2	—	88	4†	32	27	34	3.97	—	0.74	0	9	11	9	10	s.	Eugene V. Kimball.
Manitowoc.	Manitowoc.	616	61	61.0	+ 1.2	90	9	33	27	25	3.44	+ 1.33	0.83	0	11	6	12	12	sw.	Miss Johanna Lüps.
Menasha.	Winnebago.	764	15	—	—	—	—	—	—	—	3.72	+ 0.65	0.86	T.	11	18	6	6	sw.	Geo. T. Allanson.
Menomonee Falls.	Waukesha.	842	3	61.4	—	89	9†	33	27†	31	6.51	—	1.66	0	13	15	8	7	sw.	Arthur H. Christman.
Milwaukee.	Milwaukee.	681	42	64.1	+ 2.6	94	5	38	29	26	5.84	+ 2.92	3.08	0	12	14	8	8	sw.	U. S. Weather Bureau.
New London.	Outagamie.	762	16	61.2	+ 0.6	92	5	30	29	30	3.04	— 0.25	0.75	0	10	14	5	11	ne.	August H. Pape.
Oconto.	Oconto.	590	21	60.9	+ 0.1	90	9	31	29	27	4.85	+ 1.85	1.56	0	10	12	12	6	w.	Wm. K. Smith.
Oshkosh.	Winnebago.	744	23	61.6	+ 0.9	93	9	30	29	32	5.12	+ 2.46	1.41	T.	11	17	9	4	sw.	Evan Vincent.
Pine River.	Waukesha.	900	17	61.6	+ 0.5	92	9	30	29	29	5.36	+ 2.40	2.45	T.	11	9	18	3	sw.	Geo. H. Carpenter.
Plum Island.	Door.	588	4	60.4	—	86	6	36	29†	24	4.65	—	1.20	0	13	9	3	18	s.	Geo. C. Robinson.
Plymouth.	Sheboygan.	843	2	61.0	—	90	5†	33	27	26	7.03	—	2.32	0	14	9	7	nw.	Paul O. Feldrappe.	
Port Washington.	Ozaukee.	713	19	62.7	+ 1.5	96	5	35	29	28	5.24	+ 2.23	1.10	0	10	13	5	12	se.	Richard C. Kann.
Racine.	Racine.	633	15	65.2	+ 0.9	98	5	37	27†	27	3.87	+ 0.24	1.43	0	10	15	6	9	nw.	Daniel Davis.
Ripon.	Fond du Lac.	935	2	62.5 <sup>b</sup>	—	92 <sup>a</sup>	8	34 <sup>b</sup>	29	30 <sup>b</sup>	4.91	—	1.44	0	10	17 <sup>a</sup>	6 <sup>a</sup>	—	se.	Ripon College.
Sheboygan.	Sheboygan.	831	13	63.2	+ 1.2	94	9	36	27†	26	7.74	+ 4.64	3.30	0	11	12	12	6	se.	Louis C. Meyer.
Sturgeon Bay.	Door.	600	13	59.4	— 0.4	86	5	31	27†	30	8.52	—	2.11	0	13	12	6	12	ne.	Adam N. Dier.
Superior.	Douglas.	671	3	55.2	—	82	7	30	27†	29	2.28	—	0.78	0	11	16	8	6	ne.	Edward B. Banks.
Waupaca.	Waupaca.	857	17	60.7	— 0.2	93	9†	25	29	35	3.51	+ 0.26	0.80	T.	15	15	6	9	sw.	James H. Flagg.
<b>Illinois.</b>																				
Chicago.	Cook.	823	42	67.7	+ 3.1	94	5	39	26	26	3.26	+ 0.24	1.49	0	11	13	10	7	sw.	U. S. Weather Bureau.
Evanston.	do.	601	—	66.4	—	96	5	30	26	30	3.60	+ 0.56	1.07	0	10	14	7	9	—	City of Evanston.
Highland.	Lake.	691	1	—	—	—	—	—	—	—	5.69	+ 2.37	2.98	0	11	—	—	—	—	Jesse L. Smith.
<b>Indiana.</b>																				
Auburn.	Dekalb.	874	16	64.4	+ 1.7	93	10†	30	30	34	2.63	— 0.02	0.68	0	7	13	6	11	sw.	Mrs. Josie B. Kuhlman.
Berne.	Adams.	849	3	66.8	—	94	10	31	30	31	3.27	—	1.14	0	8	19	7	4	nw.	Henry M. Reusser.
Elkhart.	Elkhart.	801	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Dr. Miles Medical Co.
Fort Wayne.	Allen.	856	16	66.2	+ 0.7	94	5	35	30	29	1.94	— 1.27	0.60	0	9	12	11	7	sw.	U. S. Weather Bureau.
Hammond.	Lake.	598	21	68.4	+ 2.8	97	5†	34	30	37	3.78	+ 0.94	0.98	0	10	11	14	5	—	Carson W. Whitney.
Howe.	Lagrange.	886	7	68.2	—	100	9	34	27	40	1.84	—	0.50	0	6	23	1	6	—	James E. Zook.
Notre Dame.	St. Joseph.	712	1	65.3	—	92	10	36	30	30	3.89	—	2.07	0	9	16	11	3	sw.	U. S. Weather Bureau.
Whiting.	Lake.	606	3	66.9	—	95	6†	35	30	29	4.16	—	2.24	0	10	14	9	7	sw.	D. H. Boyd.
<b>Michigan—Upper Peninsula.</b>																				
Baraga.	Baraga.	623	10	—	—	—	—	—	—	—	2.10	—	0.0	0	8	7	0	23	w.	D., S. S. & A. Ry.
Bergland.	Ontonagon.	1,300	2	58.4	—	90	5	22	28	44	3.20	—	0.67	T.	12	16	7	7	s.	Frank McMonigal.
Blaney.	Schoolcraft.	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Calumet.	Houghton.	1,246	24	55.7	+ 0.3	84	5	32	27†	24	2.87	— 0.76	0.68	0.5	12	12	6	12	w.	E. S. Grierson.
Chatham.	Alger.	875	11	55.5	+ 0.5	88	9	21	29	42	3.92	+ 0.01	1.47	T.	11	12	8	10	n.	Upper Peninsula Exp. Sta.
Deer Park.	Luce.	610	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Mrs. Sarah E. McGaw.
Detour.	Chippewa.	585	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Eagle Harbor.	Keweenaw.	622	13	56.8	+ 0.8	80	9	30	28	26	3.14	— 0.22	0.80	T.	12	11	13	6	w.	John Nolen.
Escanaba.	Delta.	612	39	57.6	+ 0.7	87	6	30	27	28	3.88	+ 0.30	1.71	0	12	8	7	15	s.	U. S. Weather Bureau.
Ewen.	Ontonagon.	1,147	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W. B. Hatfield.
Grand Marais.	Alger.	610	11	58.3	+ 0.9	82	6	35	30	26	2.84	+ 0.40	1.00	0	11	13	5	12	s.	Mrs. Lena Truedell.
Green.	Ontonagon.	622	1	63.6	—	86	1	27	27	24	2.60	—	1.20	0	5	17	2	11	nw.	T. A. Green.
Houghton.	Houghton.	668	11	56.4	— 0.1	82	6	31	28	27	2.33	— 1.21	0.71	0.8	12	7	8	15	w.	U. S. Weather Bureau.
Humboldt.	Marquette.	1,536	15	55.8	+ 2.6	89	6	20	28	42	—	—	—	T.	13	0	17	—	w.	D., S. S. & A. Ry.
Iron Mountain.	Dickinson.	1,111	11	58.7	+ 2.4	92	9	27	28†	39	3.75	+ 0.92	1.76	T.	11	8	16	6	nw.	Chapin Mining Co.
Iron River.	Iron.	1,504	15	56.6	+ 2.1	91	5	22	28†	40	2.45	— 1.34	0.65	T.	6	11	18	1	nw.	Victor D. Laing.
Ironwood.	Gogebic.	1,520	9	56.9	—	91	5	26	28	32	4.02	—	1.55	T.	9	21	3	6	sw.	J. V. Brennan.
Ishpeming.	Marquette.	1,536	12	56.5 <sup>c</sup>	+ 1.2	87 <sup>b</sup>	5	28 <sup>c</sup>	30	35 <sup>c</sup>	2.45	— 1.13	0.60	T.	10	6	17	7	sw.	Cleveland Cliffs Iron Co.
Isle Royale.	Keweenaw.	610	5	54.6	—	71	6	35	27	17	4.20	—	0.99	T.	9	9	3	18	se.	J. A. Malone.
Mackinac Island.	Mackinac.	831	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Mackinac I. State Park Com.
Maple Ridge.	Delta.	—	6	57.2	—	88	9	25	29	37	4.38	—	1.08							

TABLE 1.—Climatological data for September, 1912. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.			
<b>Michigan—Lower Peninsula.</b>																					
Alpena.	Alpena.	609	39	60.4	+ 3.1	94	6	31	28	31	3.41	- 0.07	0.62	0	15	4	18	8	se.	U. S. Weather Bureau.	
Ann Arbor.	Washtenaw	930	32	65.1	+ 2.3	92	6†	37	30	30	3.56	+ 0.88	1.09	0	14	9	11	10	s.	University of Michigan.	
Arbela.	Tuscola.	728	16	62.7	+ 0.0	91	6	31	27	32	4.28	+ 1.50	1.51	0	9	2	11	17	sw.	Wm. Athin.	
Battle Creek.	Calhoun	822	28	65.8	+ 2.0	92	9†	34	27	29	1.38	+ 1.44	0.40	0	8	14	5	11	sw.	Elmer E. Sager.	
Bay City.	Bay.	593	16	64.0	+ 2.1	94	6†	35	30	37	1.80	- 1.67	0.73	0	4	—	—	—	w.	Pere Marquette R. R.	
Benzonia.	Benzie.	15	59.8	+ 1.6	89	9	29	29	27	4.88	+ 1.59	1.40	0	13	8	16	6	sw.	Wallace Nutting.		
Berlin.	St. Clair	832	23	64.0 <sup>b</sup>	+ 2.2	94 <sup>b</sup>	6†	34 <sup>b</sup>	27	33 <sup>b</sup>	4.20	+ 1.43	0.95	0	11	2 <sup>a</sup>	19 <sup>a</sup>	9 <sup>a</sup>	sw.	R. O. Gould.	
Big Rapids.	Mecosta.	16	61.8	+ 2.2	89	9	31	29	30	3	1.16	- 0.09	1.00	0	8	5	18	7	sw.	Supt. Water Works.	
Blissfield.	Lenawee	906	0	66.6	—	—	—	—	—	—	—	—	—	1.24	0	11	25	1	sw.	John Watson.	
Bloomington.	Van Buren	687	8	64.4	+ 0.4	90	6	32	29	29	2.23	+ 0.75	1.04	0	9	17	3	10	sw.	John M. Haven.	
Cadillac.	Wexford	1,293	3	61.2	+ 0.4	89	9	29	28	26	6.76	+ 1.63	1.63	0	10	8	8	14	w.	Cadillac W. & L. Co.	
Cassopolis.	Cass.	903	11	62.2	- 2.8	91	6	40	25	31	3.30	+ 0.13	1.80	0	2	9	13	8	w.	Michigan Central R. R.	
Charlevoix.	Charlevoix	610	34	60.2	- 0.5	92	9	34	29	24	3.17	- 0.05	1.12	0	7	6	13	11	nw.	Pere Marquette R. R.	
Charlotte.	Eaton	8	64.2	—	—	—	—	—	—	—	—	—	—	0.46	0	6	16	7	sw.	City of Charlotte.	
Cheboygan.	Cheboygan	611	22	59.5	+ 0.4	90	6	29	29	30	5.82	+ 2.98	2.00	0	7	0	25	5	w.	E. A. Bouchard.	
Clinton.	Lenawee	830	22	66.4	+ 0.7	97	9	31	27	43	3.12	+ 0.46	0.80	0	10	16	11	3	sw.	David Woodward.	
Coldwater.	Branch	984	15	67.2	+ 2.9	94	10	34	27	31	2.67	- 0.28	0.60	0	8	19	5	6	sw.	L. S. & M. S. R. R.	
Concord.	Jackson	7	66.4 <sup>a</sup>	—	—	—	—	—	—	—	—	—	—	0.65	0	7	13 <sup>a</sup>	11 <sup>a</sup>	sw.	W. N. Armstrong.	
Croton.	Newago	4	64.2	—	—	—	—	—	—	—	—	—	—	0.70	0	10	6	16	8	w.	Gr. Rap. Musk. Power Co.
Detroit.	Wayne.	730	41	65.4	+ 2.3	92	10	39	27	23	3.65	+ 1.07	0.90	0	13	13	9	8	w.	U. S. Weather Bureau.	
Durand.	Shiawassee	799	4	66.0 <sup>a</sup>	—	—	—	—	—	—	—	—	—	0	—	—	—	—	nw.	H. J. Tobin.	
East Tawas.	Iosco	590	15	60.0	+ 0.0	90	6	30	27	30	2.90	- 0.75	0.90	0	8	15	11	4	sw.	Detroit & Mackinaw Ry.	
Eloise.	Wayne	640	15	66.0	+ 1.8	93	9†	35	27	32	4.93	+ 2.23	1.44	0	11	10	14	6	ne.	John Gilmore.	
Flint.	Genesee	730	23	63.9	+ 2.4	92	10	35	27	34	3.44	+ 0.87	0.80	0	12	12	6	12	w.	William L. Fisher.	
Frankfort.	Benzie	589	8	61.0	—	—	—	—	—	—	—	—	—	1.15	0	10	8	0	22	s.	Geo. Morency.
Ganges.	Allegan	695	3	63.9	—	—	—	—	—	—	—	—	—	1.10	0	10	16	8	6	sw.	H. H. Hutchins.
Gaylord.	Otsego	1,367	12	—	—	—	—	—	—	—	—	—	—	1.34	0	11	12	0	18	sw.	Michigan Central R. R.
Gladwin.	Gladwin	794	16	—	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—	Geo. R. Smith.	
Grand Haven.	Ottawa	628	31	62.6	+ 1.5	85	9	35	29	23	2.49	- 0.68	0.92	0	13	9	12	9	s.	U. S. Weather Bureau.	
Grand Rapids.	Kent.	707	23	64.0	+ 2.2	92	9	36	29	26	3.42	+ 0.30	1.23	0	10	8	8	14	w.	Do.	
Grape.	Monroe	625	22	65.8	+ 1.5	93	6†	35	27	33	2.59	- 0.64	1.09	0	11	18	8	4	sw.	Joseph W. Morris.	
Grass Lake.	Jackson	989	6	67.2	—	—	—	—	—	—	—	—	—	1.02	0	6	18	9	3	sw.	Menzo Conklin.
Grayling.	Crawford	1,147	22	57.6	- 0.9	91	6†	25	28	31	3.14	+ 0.15	1.43	0	8	10	11	9	w.	S. N. Insley.	
Greenville.	Montcalm	802	0	64.0	—	—	—	—	—	—	—	—	—	1.18	0	8	—	—	—	Michigan Fickle Co.	
Harbor Beach.	Huron	635	24	62.0	+ 1.2	94	6	31	27	35	2.76	+ 1.84	1.30	0	8	9	14	7	s.	Pere Marquette R. R.	
Harrison.	Clare	1,159	19	61.4	+ 0.8	90	6†	34	28	32	5.06	+ 2.31	2.20	0	8	8	16	16	sw.	Do.	
Harrisville.	Alcona	616	28	60.2	+ 1.8	92	6	30	27	33	4.78	+ 1.90	1.05	0	12	8	9	13	sw.	D. W. Mitchell.	
Hart.	Oceana	698	20	64.2	+ 4.1	92	4	33	30	38	3.34	+ 0.04	1.10	0	7	—	—	—	sw.	Pere Marquette R. R.	
Hayes.	Huron	620	22	63.6	+ 2.0	91	7	38	29	32	3.08	+ 0.44	1.04	0	6	6	20	4	sw.	C. F. Leiprandt.	
Highland.	Oakland	1,006	20	—	—	—	—	—	—	—	—	—	—	0	9	—	—	—	—	A. D. DeGarmo.	
Hillsdale.	Hillsdale	1,150	15	—	—	—	—	—	—	—	—	—	—	0.87	0	12	14	11	5	sw.	C. L. Herron.
Holland.	Ottawa	610	15	63.8	—	—	—	—	—	—	—	—	—	0.80	0	13	11	14	5	sw.	City of Holland.
Howell.	Livingston	924	20	65.7	+ 2.9	91	9	35	27	43	4.90	+ 1.98	0.80	0	12	7	20	3	sw.	Frank Sharp.	
Ivan.	Kalamazoo	23	60.0	+ 0.7	89	6†	26	29	31	3.90	+ 0.71	1.15	0	12	11	11	8	sw.	O. L. Giddings.		
Jackson.	Jackson	927	15	66.2	+ 1.5	95	9†	32	27	34	3.37	+ 0.60	1.09	0	14	11	11	8	sw.	City of Jackson.	
Jeddo.	St. Clair	667	23	62.6	+ 0.5	91	13	34	27	38	4.94	+ 2.17	1.52	0	9	8	14	8	sw.	William Bice.	
Kalamazoo.	Kalamazoo	955	36	64.8	+ 1.7	93	9	33	27	32	4.53	+ 1.45	0.80	0	10	13	12	5	w.	Kalamazoo Asylum.	
Lansing (Agricultural College).	Ingham	820	48	62.7	- 1.1	92	9	32	27	31	3.33	+ 0.71	0.86	0	13	11	5	14	sw.	U. S. Weather Bureau.	
Lansing (Capitol).	do.	881	25	64.3	+ 2.4	92	9	34	27	30	3.36	+ 0.44	0.72	0	13	8	7	15	se.	State Board of Health.	
Lapeer.	Lapeer	827	13	65.0	+ 3.1	96	6†	38	30	38	3.72	+ 0.82	0.88	0	7	6	21	3	nw.	Michigan Home.	
Ludington.	Mason	586	14	60.5	- 1.1	82	1†	32	29	29	4.50	+ 2.28	1.92	0	9	10	16	4	sw.	Pere Marquette R. R.	
Luther.	Lake.	1,028	2	59.8	—	—	—	—	—	—	—	—	—	1.39	0	12	7	12	11	s.	John W. Nicholson.
Mackinaw.	Cheboygan	592	21	—	—	—	—	—	—	—	—	—	—	0	—	—	—	—	—	G. R. & I. Ry.	
Mancelona.	Antrim	1,121	16	58.0	- 0.1	87	9	25	29	32	2.27	- 0.94	1.30	0	7	9	4	17	w.	Do.	
Manistee.	Manistee	600	15	—	—	—	—	—	—	—	—	—	—	0	8	—	—	—	—	Pere Marquette R. R.	
Marshall.	Calhoun	896	0	65.6 <sup>d</sup>	—	—	—	—	—	—	—	—	—	1.00	0	—	—	—	—	E. B. Stuart.	
Midland.	Midland	604	13	63.8	+ 2.4	93	9	33	29	44	4.32	+ 2.15	1.10	0	11	7	9	14	s.	Pere Marquette R. R.	
Morenci.	Lenawee	811	5	66.5	+ 0.3	94	10	33	27	33	2.65	+ 0.74	0.74	0	8	17	5	8	sw.	George J. Tripp.	
Mount Clemens.	Macomb	615	12	65.8	+ 3.3	96	6	35	27	32	6.53	+ 3.62	1.30	0	12	10	5	15	w.	Waterworks.	
Mount Pleasant.	Isabella	826	13	63.4	+ 2.3	92	5†	34	28	32	3.46	+ 1.12	0.92	0	10	9	10	11	w.	Pere Marquette R. R.	
Muskegon.	Muskegon	587	16	63.6	+ 1.6	88	9†	35	27	30	2.38	- 0.91	1.30	0	11	12	17	1	sw.	G. R. & I. Ry.	
Old Mission.	Grand Traverse	858	18	61.0 <sup>d</sup>	0	90 <sup>b</sup>	9	33	29	28 <sup>b</sup>	4.53	+ 1.33	1.69	0	9	7	19	4	sw.	E. O. Ladd.	
Olivet.	Eaton	934	22	63.1	+ 1.6	87	5†	36	27	23	1.87	- 1.57	0.48	0	9	20	0	10	w.	G. A. Knapp.	
Omer.	Arenac	616	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	D. & M. Ry.	
Onaway.	Presque Isle	826	9	59.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Do.	
Owosso.	Shiawassee	731	15	65.4	+ 2.2	93	5†	33	27	35	2.52	- 0.04	0.53	0	16	3	24	3	sw.	Owosso Sugar Company.	
Petoskey.	Emmet	660	22	60.8	+ 1.1	86	9	30	28	32	2.45	- 0.34	1.38	0	10	5	9	16	w.	G. R. & I. Ry.	
Plymouth.	Wayne	725	15	66.7	+ 4.7	95	10	34	27	39	4.47	+ 2.02	1.74	0	7	22	3	5	se.	Pere Marquette R. R.	
Pontiac.	Oakland	935	12	64.9	+ 2.1	90	6†	35	27	27	2.60	+ 0.18	1.03	0	8	12	11	7	sw.	Fred W. Shaw.	
Port Austin.	Huron	618	15	62.7	+ 1.9	90	6†	38	28	30	3.93	+ 1.77	1.96	0	6	13	7	10	sw.	Pere Marquette R. R.	
Port Huron.	St. Clair	639	37	63.9	+ 3.0	93	6	37	27	27	3.89	+ 1.21	1.07	0	14	9	10	11	w.	U. S. Weather Bureau.	
Reed City.	Oscoda	1,033	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Pere Marquette R. R.	
Roscommon.	Roscommon	1,141	11	57.6 <sup>a</sup>	+ 0.2	90 <sup>a</sup>															

TABLE 1.—Climatological data for September, 1912. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Ohio—Continued.</b>																				
Cleveland (2).....	Cuyahoga	754	15	66.2	+ 1.5	91	1	40	30	26	3.37	+ 0.19	1.21	0	12	13	9	8	se.	Rev. F. L. Odenbach, S. J.
Conneaut.....	Ashtabula	675	2	66.4	.....	88	1†	37	30	30	7.91	.....	3.10	0	13	12	2	16	sw.	E. L. Ransom.
Findlay.....	Hancock	776	23	66.6	+ 0.7	95	9†	30	30	39	2.24	.....	0.75	T.	7	20	5	5	sw.	Dr. E. A. Moser.
Fremont.....	Sandusky	628	10	67.6	+ 1.7	95	10	35	30	43	3.35	+ 0.45	0.95	0	9	19	7	4	sw.	E. Stanley Thomas.
Hedges.....	Paulding	725	18	67.0	+ 2.2	98	9†	31	30	32	2.33	+ 0.48	1.03	0	6	20	5	5	sw.	Charles Stutzman.
Hillhouse.....	Lake	997	19	65.6	+ 1.3	88	1†	33	30	32	3.40	+ 0.30	1.16	0	13	13	13	4	sw.	J. W. Doncaster.
Hiram.....	Portage	1,240	32	65.8	+ 2.2	90	2†	38	27†	30	3.51	+ 0.02	0.84	0	11	11	17	2	sw.	Prof. G. H. Colton.
Hudson.....	Summit	1,123	51	67.9	+ 3.9	94	10	38	30	33	5.31	+ 2.16	2.10	0	12	19	9	2	sw.	Dr. W. I. Chamberlain.
Lima.....	Allen	875	13	66.8 <sup>b</sup>	+ 1.6	92 <sup>a</sup>	6	32	30	32 <sup>a</sup>	2.51	+ 0.22	0.70	0	7	21	1	8	e.	Miss Ollie De Long.
Medina.....	Medina	944	24	66.5	+ 1.3	95	10	31	30	37	3.80	+ 1.09	1.27	0	8	17	5	8	s.	F. W. Clark.
Montpelier.....	Williams	880	20	67.6	+ 3.8	96	5†	33	27†	35	2.48	+ 0.50	0.64	0	5	16	1	13	ne.	G. L. Lasey.
Napoleon.....	Henry	680	25	66.4	+ 1.1	96	11	33	28†	39	2.20	+ 0.46	0.68	0	6	11	13	6	sw.	A. C. Senter.
New Bremen.....	Auglaize	1,038	19	66.4	+ 0.3	92	2†	32	30	35	3.46	+ 0.80	1.00	0	10	16	12	2	sw.	Miss Lillian Grothaus.
North Royalton.....	Cuyahoga	1,000	19	66.0	+ 0.7	92	10	34	30	30	6.20	+ 3.28	2.18	0	10	16	12	2	w.	W. S. Edgerton.
Norwalk.....	Huron	719	26	67.3	+ 2.2	97	10	32	30	37	3.61	+ 0.87	0.82	0	12	7	13	10	w.	Giles R. Gregory.
Oberlin.....	Lorain	855	37	67.0	+ 2.9	95	10	37	27†	32	2.76	+ 0.08	0.62	0	11	8	18	4	sw.	Prof. F. F. Jewett.
Ottawa.....	Putnam	720	19	66.8	+ 0.9	93	6	32	30	39	2.39	+ 0.35	1.40	0	8	6	16	8	sw.	Prof. J. T. Mallow.
Sandusky.....	Erie	629	35	66.8	+ 1.5	92	2	40	30	27	2.79	+ 0.11	0.91	0	7	19	9	2	sw.	U. S. Weather Bureau.
Tiffin.....	Seneca	775	30	69.1	+ 4.1	95	2	37	30	32	2.66	+ 0.09	0.86	0	7	19	9	2	sw.	Prof. T. H. Sonnedecker.
Toledo.....	Lucas	769	41	67.0	+ 2.9	94	10	39	27	26	2.09	+ 0.33	1.48	0	8	17	7	6	sw.	U. S. Weather Bureau.
Upper Sandusky.....	Wyandot	854	29	66.6	+ 1.8	92	2†	33	30	33	3.45	+ 0.96	1.02	0	6	13	12	5	w.	Robert E. Tracht.
Vickery.....	Sandusky	588	19	66.7	+ 0.2	98	10	33	30	39	3.17	+ 0.83	0.90	0	9	8	18	4	n.	John W. Barr.
Wapakoneta.....	Auglaize	898	.....	66.8	.....	92	1†	32	30	26	2.86	.....	1.04	0	7	16	6	8	se.	Dr. Wm. Kayser.
Wauseon.....	Fulton	780	40	66.2	+ 2.6	95	10	32	30	38	3.22	+ 0.64	1.45	0	14	10	12	8	s.	Thomas Mikesell.
Wickliffe.....	Lake	740	.....	.....	.....	.....	.....	.....	.....	.....	3.32	.....	0.93	0	9	15	7	8	w.	C. M. Richardson.
<b>Pennsylvania.</b>																				
Erie.....	Erie	658	39	66.2	+ 2.3	86	10	41	30	22	4.59	+ 1.10	1.43	0	13	7	13	10	s.	U. S. Weather Bureau
<b>New York.</b>																				
Adams Center.....	Jefferson	540	21	62.7	+ 1.6	83	10	30	30	25	6.78	+ 3.31	0.88	T.	24	3	12	15	s.	A. E. Cooley.
Angelica.....	Allegany	1,340	29	61.7	+ 2.8	86	10	28	30	34	3.41	+ 0.44	0.74	0	15	1	15	14	w.	Charles P. Arnold.
Appleton.....	Niagara	270	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. A. Van Wagener.
Auburn.....	Cayuga	715	43	63.0	+ 2.0	88	10	34	30	30	8.23	+ 5.18	2.15	0	13	14	12	4	s.	A. H. Underwood.
Avon.....	Livingston	585	17	64.4	+ 2.5	90	10	32	30	30	3.03	+ 0.37	0.72	0	9	11	9	10	.....	W. G. Markham.
Blue Mountain Lake.....	Hamilton	1,750	12	.....	.....	.....	.....	.....	.....	.....	6.84	+ 2.41	0.47	0	23	4	5	21	w.	B. F. Merwin.
Brockport.....	Monroe	537	16	64.3	+ 1.1	88	10	35	30	27	2.26	+ 0.34	0.36	0	16	6	14	10	s.	W. H. Lennon.
Buffalo.....	Erie	767	61	64.6	+ 1.7	85	4	41	30	21	3.31	+ 0.13	1.17	0	14	11	7	12	sw.	U. S. Weather Bureau
Canton.....	St. Lawrence	448	18	58.0	+ 1.3	82	10	31	30	31	4.40	+ 1.59	0.78	T.	18	3	7	20	sw.	Do.
Cape Vincent.....	Jefferson	246	7	61.2	.....	82	10	36	30	23	5.39	.....	0.72	0	15	7	4	19	s.	J. Harry Grapotte.
Chazy.....	Clinton	151	12	58.4	+ 1.2	78	5	31	30	29	5.42	+ 2.45	1.28	0	14	9	9	12	s.	W. R. North.
Chestnut Lawn.....	Wyoming	.....	0	64.3	.....	88	10	31	30	28	3.68	.....	1.15	0	15	13	10	7	w.	Charles Peterson.
Dannemora.....	Clinton	1,490	7	57.4	.....	76	11	30	30	22	5.34	.....	1.42	T.	17	5	4	21	w.	Dr. W. N. Thayer.
Elba.....	Genesee	500	13	61.8	+ 0.9	84	10	32	30	29	2.00	+ 0.56	0.34	0	11	13	6	11	sw.	Joseph S. Wilford.
Fayetteville.....	Onondaga	530	11	62.8	+ 0.7	88	10	33	30	33	4.77	+ 2.32	0.91	0	16	6	14	10	sw.	Dana H. Wells.
Gabriels.....	Franklin	1,729	10	55.4	.....	82	10	28	28	40	6.23	.....	1.10	T.	12	9	5	16	w.	Gabriels Sanitarium
Harkness.....	Clinton	622	10	58.3	+ 1.0	81	7	31	30	29	5.57	+ 2.84	0.83	0	18	14	7	9	w.	J. W. Harkness.
Hemlock Lake.....	Livingston	900	14	64.8	+ 2.0	87	2	38	30	25	4.64	+ 2.43	1.46	T.	14	14	8	8	s.	Bernard P. McGrady.
Hunt.....	do.	1,321	13	63.8	+ 1.2	90	10	30	30	30	4.02	+ 1.56	0.90	0	11	10	12	8	nw.	W. S. Barager.
Ithaca.....	Tompkins	928	34	62.4	+ 1.8	86	7	32	30	32	7.46	+ 4.43	2.48	0	18	10	12	8	se.	U. S. Weather Bureau.
Keene Valley.....	Essex	1,000	14	59.4	+ 0.7	94	10	33	28	51	5.44	+ 1.98	0.83	0	15	11	5	14	sw.	E. R. Wells.
King Ferry.....	Cayuga	.....	12	.....	.....	.....	.....	.....	.....	.....	4.75	+ 2.31	1.00	0	13	10	11	9	se.	Lucius A. Goodyear.
Lake George.....	Warren	350	15	59.7	+ 0.9	85	7	30	30	32	5.60	+ 1.98	1.75	0	13	6	9	15	w.	Charles Forsell.
Lake Placid Club.....	Essex	1,864	4	50.0	.....	76	9	26	30	32	6.01	.....	1.72	0.5	20	8	12	10	w.	Henry Van Hovenberg.
Lauterbrunnen.....	Wyoming	.....	0	64.0	.....	89	10	30	30	30	4.12	.....	1.15	0	15	9	12	9	w.	James O. Howard.
Lockport.....	Niagara	520	25	64.3	+ 1.9	88	10	37	30	25	2.21	+ 0.60	0.55	0	11	10	10	10	sw.	Robert N. Clark.
Lowville.....	Lewis	900	45	59.7	+ 1.9	87	9	27	30	39	4.60	+ 1.53	1.14	0	16	2	22	6	sw.	Prof. W. F. H. Breeze.
Molra.....	Franklin	200	12	57.2	+ 3.8	82	10	32	29†	32	7.11	+ 3.73	0.82	T.	18	2	14	14	w.	C. E. McBride.
Nehasane.....	Hamilton	1,750	4	55.3	.....	79	7	28	30	38	5.09	.....	1.21	T.	21	5	13	12	w.	L. W. Brown.
North Lake.....	Herkimer	1,822	11	56.6	.....	79	6†	30	30	32	7.75	.....	1.73	0	13	10	4	16	sw.	John F. Redmond.
Ogdensburg.....	St. Lawrence	175	28	.....	.....	82	7	39	30	24	4.78	+ 2.03	0.70	T.	16	3	14	13	se.	State Hospital.
Old Forge.....	Herkimer	1,733	4	55.8	.....	79	4†	29	28	32	5.07	.....	1.17	0	18	11	4	15	w.	Mrs. S. W. Nelson.
Oswego.....	Oswego	335	42	61.6	+ 1.1	85	10	37	30	29	4.50	+ 1.69	0.86	0	16	4	14	12	s.	U. S. Weather Bureau.
Otto.....	Cattaraugus	1,410	8	66.0	.....	86	3†	33	30	32	1.78	.....	0.69	0	9	13	12	5	.....	William J. Winke.
Palermo.....	Oswego	460	53	.....	.....	.....	.....	.....	.....	.....	6.20	+ 3.13	1.40	0	17	15	7	8	se.	E. B. Bartlett.
Perry City.....	Schuyler	1,038	32	59.3	+ 0.4	85	10	27	30	35	6.84	+ 4.10	1.87	0	17	5	16	9	sw.	W. H. Jeffers.
Philadelphia.....	Jefferson	485	6	60.4	.....	83	10†	29	30	29	4.40	.....	0.61	0	22	4	18	8	sw.	E. D. Babcock.
Potsdam.....	St. Lawrence	300	36	58.8	+ 1.0	83	10	33	30	32	5.59	+ 2.51	0.80	0	16	.....	.....	.....	.....	A. E. Sutherland.
Prospect Home.....	Wyoming	.....	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Raquette Lake.....	Hamilton	1,776	4	57.0	.....	79	7	31	30	30	5.71	.....	1.14	0	19	7	6	17	sw.	R. J. Dunning.
Rochester.....	Monroe	523	83	64.0	+ 2.1	90	10	36	30	25	2.55	+ 0.23	0.66	0	12	8	11	11	sw.	U. S. Weather Bureau.
Romulus.....	Seneca	719	20	63.2	+ 0.2	86	10	34	30	28	3.78	+ 1.22	1.69	0	14	6	9	15	w.	John H. Coryell.
Shortsville.....	Ontario	740	13	63.6	+ 0.2	87	10	36	30	27	5.12	+ 2.96	1.23	0	17					

TABLE 2.—Daily precipitation for September, 1912. District No. 4, Lake Region.

Stations.	Watershed.	Day of Month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Minnesota.																																	
Cloquet.	Lake Superior.	T.			.83									.16			.15						.08			.83	.16						2.21
Duluth.	do.				.25	.03			.22	.14				.13			.20				T.	.01	.02		T.	.75	.03				.02		1.80
Floodwood.	do.												.16	.20													.36	.44	.85			2.01	
Stephens Mine.	do.		.60		.43	.48				.80							.23				.70		.11				.21					3.56	
Two Harbors.	do.	T.			.48	.20			T.	.20	.05			.05			.05	T.			T.		.05			.80	.30					2.18	
Virginia.	do.		1.03		.25	1.16				.15				.60			.22				.15	T.	.16			.43	.33					4.48	
Wisconsin.																																	
Appleton.	Fox.	.12	.32		.65	.02			.02		.02					.02	.10	.21	.08	.20	.20	.42				.50						2.80	
Ashland.	Lake Superior.	.02							.07	.04				.12			.22				.02	.04			.43	T.				.04		1.00	
Bayfield.	do.	.22	.08		1.58				1.15	.04	.05			.15			.25				.05					.89	T.					4.46	
Cecil.	Fox.	1.33			.78	.58			.14							.11	.12	T.	.21	.42					.40							4.09	
Cornucopia.	Lake Superior.				.72	T.			.20	.10	.03			.02	T.		.20	.02		.01	T.	.04				.62	.16			.10		2.22	
Crandon.	Fox.	1.46			.25	.03			.02	.03				.04	.08		.09	.27			T.	.32				T.	.11					2.70	
Florence.	Menomonee.	.63							.19	.16					.13			.38				.66				.10	T.					2.25	
Fond du Lac.	Fox.	.05	.58		.95					.04					.40	.14	.48	.90	.52	.16	.46					.06				.17		4.91	
Grand River Locks.	do.	.22	.95		.90					.06				.06	.08	.35	.20	.10	.07	.66	.47					.40					5.52		
Green Bay.	Lake Michigan.	.26	.65		1.00	.83			.22		.03			T.	.07	.04	.12	.07	.09	T.	.18	.32				.89						4.70	
High Falls.	do.	1.79	T.		.29	.16			.96		.09			T.	.07		.01	.18		.01	T.	.70	T.			.20						4.46	
Iron River.	Lake Superior.	T.			.07	.03			.06	.66	.07			.06	.62	T.	.27	.03			.03		.09		T.	.70	.14					2.83	
Kewaunee.	Lake Michigan.	.74	.34		.54	.16			.11						.34	.58				.50		.66										3.97	
Manitowoc.	do.	.07	.21		.42	T.									.53	T.	.43	.83	.02	.05	.50					.36			.02			3.44	
Menasha.	Fox.	.28	.46		.76	.04			.02		T.				T.	.03	.36		.28	.04	.59					.86			T.			3.72	
Menomonee Falls.	Lake Michigan.	.13	.02</																														

TABLE 2.—Daily precipitation for September, 1912. District No. 4—Continued.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Michigan—Lower Peninsula—Con.</i>																																	
Arbela	Saginaw					.33									1.51	.56	.41	.14				.56					.14	.31	.32		4.28		
Battlecreek	Kalamazoo			T.								.10			.04	.17		.27	.28			.40			T.			.05	.07		1.88		
Bay City	Saginaw			.31													.45	.73										.31			1.80		
Benzonis	Betsy	.78	1.40		.13	.39	T.		.61		.07					.50	T.	.32	.09	.09	T.	.37	.03			.10					4.88		
Berlin			.31												T.	.29	.09	.42	.15				.95		.01		.14	T.	.18	.25		4.20	
Big Rapids	Muskegon		.80		.26	.28		.18							1.00	.01	.32	.39	.14			.04	.16							.01		3.16	
Blissfield	Raisin		.31	.26		.08									.45	.01	.32	.39	.14			1.24	T.				.15				.01	3.36	
Bloomington	Lake Michigan		T.												T.	1.04	.17	.05	.22			.50	.18			T.		.02	.03	.02		2.23	
Cadillac	Manistee	.95	1.63		.07	.43			1.35						1.63	.43				.08		.10	.09									6.76	
Cassopolis	St. Joseph	1.50														.32	.08		.12			.15								1.80		3.30	
Charlevoix	Lake Michigan	1.12	1.02								.36																					3.17	
Charlotte	Kalamazoo			T.							.40					.27	.30	T.		T.		.46						.05	.08			1.56	
Cheboygan	Cheboygan	2.00				1.10			T.		.82					1.10	.20	.10	T.		T.	.50			T.	T.				T.	T.	5.82	
Clinton	Raisin			.37		.47					.18				.11	.08	.24	.39	.44	.13		.15	.75				.18		T.	.04		3.12	
Coldwater	St. Joseph			.25											.12	.25	.50	.45	.43			.60					.07	T.				2.67	
Concord	Kalamazoo										.25				.08	.35	.65				.20	.35					.50	T.		.10	.10	2.38	
Croton	Muskegon	.10	.06		.07											.70	T.	.20	T.	.20	.03	T.	.08	T.								1.64	
Detroit	Detroit	T.	.16	T.		.84						.16		.01	.08	.24	.39	.44	.13		.15	.75					.14		T.	.06		3.55	
Durand	Saginaw														.15	.05	.67		.03	.06		.47										2.90	
East Tawas	Lake Huron	.20	.80						T.		T.				.90	.15	.10	.40			.10	.25						T.				4.93	
Eloise	Rouge	T.	.01	.12		1.00					.22				.08	.41	.47	.73	.71			1.06					.12	T.				3.44	
Flint	Saginaw			.08							.10				.12	.50	.08	.65			.07	.80	.13				.20		.06	.65		2.70	
Frankfort	Betsy		.15		.15				.90		.20				.52	.36	.10	.24			.42	.23										2.49	
Ganges	Lake Michigan		.03	.06							.12				1.10	.20	.16	.51	.03			.32					.12	T.		.30	.19	.06	3.63
Gaylord	Cheboygan	1.34	1.23		T.	.07					.11	T.			.26		.07	.03	T.														2.49
Gladwin	Saginaw										.03			T.		.76	T.	.37	.20	.72	.09	.02	.01			.01		T.	.11			2.49	
Grand Haven	Grand	.01	.06		.10						.50				1.23	T.	.49	.18	.24	.01	.31	.03										3.42	
Grand Rapids	do	T.	.11		T.										.17	.45	.07				1.09						.15		T.	.32		2.59	
Grape	Raisin		.04	.14		.20					.07				.03	.18	.17	.45	.07													2.62	
Grass Lake	Grand					T.					.45				.12	T.		1.02	.18			.65										3.14	
Grayling	Au Sable	1.43							.21		.03					.80				T.	.03		.13										2.76
Greenville	Grand			.05					.15						.18	.20		.20			.45	.15										4.07	
Harbor Beach	Lake Huron	.10	1.20												.130	.10		.30	.10			.77										5.06	
Harrison	Saginaw		.20		.06	.20			.34						.43	.29		.11	.13	.05	.25											4.78	
Harrisville	Lake Huron	.36	.51						.66	.50	T.	1.00	1.10		1.05	.08	.02	.53	.52	T.	.30				.05							3.34	
Hart	Pentwater								.50	.40									.12					.12								3.08	
Hayes	Pigeon	1.04							T.						.78	.17	T.	.37				.42							.30			3.37	
Highland	Huron					.20					.38				.41		.54	.27				.95					.28		.04	.30		2.84	
Hillsdale	St. Joseph															.87	.01	.35	.10	.65	.07	.08	.06			.02		.25			4.02		
Holland	Lake Michigan		.02								.36				.05	.10		.40	.50	.10		.80					.22		.20	.10		3.90	
Howell	Saginaw		.05	.75		.35					.40					.70	.25				.06	.06	.11									3.37	
Ivan	Manistee	.48	.88		.06	.05		1.15		.09					.15	.08	.80	.15	.07		.21	.88					.30		.04	.08		4.94	
Jackson	Grand		.10	.12		.04					.35				.28	.75	.50	.25									.20	T.	.24	.52		4.53	
Jeddo	St. Clair	1.52			.68						.70				.60	.80	.45	.15	.46		.17	.15							.25			3.33	
Kalamazoo	Kalamazoo		.80								.08	.78			.05	.12	.78	.06	.03		.09	.54							.50	.01		3.36	
Lansing (Agricultural College)	Grand		.12		.17						.08	.78			.05	.12	.78	.06	.03		.09	.54										3.36	
Lansing (Capitol)	do		.25		.10						.72			T.	.10	.02	.57	.27	.13	.05		.52	.15			T.		.02	.46		3.72		
Lapeer	Saginaw				.40											.05	.65	.85	.13			.88								.76		4.50	
Ludington	Pere Marquette	.15				.42					.37			.37		1.92	T.	.48	.52		.26					.01						5.81	
Luther	Manistee	.26	1.39		.22	.63		1.26		.06					1.35	T.	.53	T.	.01	.04	.01	.05										2.27	
Mackinaw	Lake Huron								.05		.10					.10		T.	T.	.02		T.					T.	T.				3.26	
Mancelona	Lake Michigan	1.30	.60		T.	T.										.75	.24	.10	.12			.51										4.32	
Manistee	Manistee			.26	.28					1.00																							2.65
Marshall	Kalamazoo																															4.25	
Midland	Saginaw	.40	.22			.20			.10						1.00		.20	.10	.10			.60			T.			T.	.10	.30		2.62	
Morenci	Maumee			.62											.11	.07	.19		.48		.27	.74							.17			4.35	
Mount Clemens	Clinton	T.	.25	.75		.75	T.				.75				.50	.23	.69	1.30	.10	T.		.93							.15	.13		6.53	
Mount Pleasant	Saginaw	.19	.92						.80						.15	.39	.10	.32	.08	.40									.11			3.46	
Muskegon	Muskegon		.10		.05						.10				.130	.10	.33	.10	.10	.15	.02								.03			2.38	
Old Mission	Lake Michigan	1.69	1.10		.02	T.		.36		.14					.33		.37	.40				.12										4.53	
Olivet	Kalamazoo		T.	.04							.48				.06	.19			.28	.04	.02	T.	.48			T.	T.		.28			1.87	
Omer	Lake Huron																																
Onaway	Cheboygan																																
Owosso	Saginaw			.36		.08			.01		.12	.01			.02	.34		.30	.08	.05	.07		.53	.02				.05	.09				

TABLE 2.—Daily precipitation for September, 1912. District No. 4—Continued.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Ohio—Continued.</i>																																	
Hillhouse.....	Lake Erie.....		.66	.15			.02								.40	.02		.15	.22	.10		.30	1.16	.04	T.	.08			.10	T.	3.40		
Hiram.....	do.....	.05	.50	.25		T.	.35								.40			.35	.07	.12		.35	.84	.03	T.	T.				.10	T.	3.31	
Hudson.....	do.....	.10	2.10	.58											.11	.45		.20	.25	.10		.60	1.05		.02					.05		5.51	
Lima	Maumee.....														.03	.65		.40		.03		.70	.60			.10						2.51	
Medina.....	Lake Erie.....		.76	.36			T.								T.	.61		.15	.12			1.27	.41		.12					T.		3.80	
Montpelier.....	Maumee.....		.30	T.											.20	.10		.58				.64	.32		.34							2.48	
Napoleon.....	do.....																.34	.60		T.		.38	.68			.20						2.20	
New Bremen.....	do.....						1.00								.20	.51		.67		T.		.97			.11							3.46	
North Royalton.....	Lake Erie.....		2.18	1.05											.66			.09	.24	.26		.84	.70			.10				.08		6.20	
Norwalk	do.....	.53	.46	.03											.29	.74		.29	.08	.18		.82				.14	.02			.03		3.61	
Oberlin.....	do.....	T.	.60	.12			.06								.06	.62	T.	.28	.18			.58	.15	T.	.02					.09		2.76	
Ottawa.....	Maumee.....		.20												.02	.06		.05	.26	T.		.30	1.40			.10						2.39	
Sandusky.....	Lake Erie.....		.01	.67		T.	T.								T.	.68		.22	.14	T.		.91		T.	.16					T.		2.79	
Tiffin.....	Sandusky.....		.04	T.											.06	.48	T.	.18	.76	T.		.86			.28					T.		2.66	
Toledo.....	Maumee.....		.16			T.									T.	.39		.38	.13	.07		.21	1.27		T.	T.	.08			T.		2.69	
Upper Sandusky.....	Sandusky.....		T.	.20											.70	.41		T.	1.02	.20			.92	T.						T.		3.45	
Vickery.....	Lake Erie.....		.04	.49	.01										.67		.30	.50	.04			.90				.22							3.17
Wapakoneta.....	Maumee.....							.03							.48	.67		.25	.30			1.04				.09							2.86
Wauseon.....	do.....		.05	.09	.01		.11		T.						.02	.02	.07		.73	.02	.06		.94	.51		.57				.02		3.22	
Wickliffe	Lake Erie.....		.50	.12													.43		.48	.18			.93	.61			.02			.05	T.	3.32	
<i>Pennsylvania.</i>																																	
Erie.....	Lake Erie.....	.56	1.00				.12					.01			T.	.08			.39	.05	.66		.51	.96			.05			.10	.10	4.59	
<i>New York.</i>																																	
Adams Center.....	Lake Ontario.....	.31	.20	.62	.12	.24	.20	.32	T.	T.	.30	.14	.07	T.	.02	.88	.24		.74	.08	.34	.04		.24	.14	.04	.06	.02	T.	.62	.20	6.78	
Angelica.....	Genesee.....	.70	.09	T.		.04	.04				.39					.65	.09		.23	.05				.29	.52	.02	.13			.14	.03	3.41	
Appleton.....	Lake Ontario.....																																
Auburn.....	Oswego.....	1.35	.52		.30					.02	.22				2.15			T.	.53	.10			.82	1.18		.62			.36	.06	8.23		
Avon.....	Genesee.....	.19	.72								.25				.29	T.		.70					.43	.24		T.			.11	.10	3.03		
Blue Mountain Lake.....	Raquette.....	.37	.15	.20	.27	T.	.47	T.			.18	.27	.26	.33	.25	.37	.26	.33	.22	.25	.24	.18	.47	.27	.37	.43			.23	.47	6.84		
Brockport.....	Lake Ontario.....	.28	.22			T.	.14				.14				.09	.20	.12		.24	.04	.05		.36	.17	.02	T.		.01	.12	.06	2.26		
Buffalo.....	Lake Erie.....	.60	.14							.20					.14	.09	T.		.11	.38	.83		.07	.43	.14		.04		.08	.06	3.31		
Canton.....	Grass.....	.24	.21	T.	.01	.53	.06	T.			.01	.36	T.		T.	.53		T.	.22	.24	.53	T.		.35	.07	.14	.11	.01	.05	.73	T.	4.40	
Cape Vincent.....	St. Lawrence.....	.45	.35			.67				.72					.05	.40		.20		.03	.36		.55	.43		.28		.44	.33	.13	5.39		
Chazy.....	Champlain.....	.30				.50	.22	.37		.03	.33				.20			1.00		1.28			.12	.13		.34			.56	.05	5.42		
Chestnut Lawn.....	Genesee.....	1.15	.85			.02	.04	.05		.08					.06	.27		.48		.01			.28	.19		.04			.09	.07	3.68		
Dannemora.....	Champlain.....	.15	.04	T.		T.	.02	.90		.25	.54				.50	.36		.43	.04	1.42	.02		.15	.19	T.	.03		.25	.05	5.34			
Elba.....	Lake Ontario.....	.23	.17			T.	.11			.19					T.	.23	.15		.20		.10		.34	.06		T.		.22			2.00		
Fayetteville.....	Oswego.....	.66	.06	.20						.09					.04	.61		.18	.03	.08			.91	.52	.51		.10		.34	.05	4.77		
Gabriels.....	St. Regis.....	.80	T.	.15		T.	.60	T.			.45	T.			T.	1.00		1.10		.70		.25		.10		.15		.90	.03	6.23			
Harkness.....	L. Champlain.....	.46	.02	.02		.03	.37	.23		.31	.38				.53	.66		.46	.04	.38		.12				.10		.83	.03	5.57			
Hemlock Lake.....	Genesee.....	.46	.04			.03				.16					* 1.46			.65	.04	.01			.22	.26		.18		.14	.09	4.64			
Hunt.....	do.....	.90	.65		.02					.14					.83			.44					.27	.25		.13		.15	.24	4.02			
Ithaca.....	Oswego.....	2.47	.15		.76	.03				.82	.22				.02	.50		.05	.13	.01	T.		.83	.70	.03	.25	.01	.43	.05	7.46			
Keene Valley.....	Ausable.....	.83	.12			.38				.32					.38	.28	.17		.43	.38	.26	.63		.72		.06	.07	.64	.15	5.44			
King Ferry.....	Oswego.....	1.00	.21		.28					.15					.03	.64		.10	.20			.90	.57	.13	.15		.39	T.	4.75				
Lake George.....	L. Champlain.....	1.75	.15	.16		T.				.06					T.	1.30	.35		.63	.46	.15	T.				.09	.27	.12	5.60				
Lake Placid Club.....	Ausable, W. Br.....	1.03	.05	T.		.10	.47	.02		.42	T.				.09	1.72	.23	T.	.28	.14	.49	.02	.09	.05	.31	.12	.09	.08	.21	6.01			
Lauterbrunnen.....	Genesee.....	1.15	.85			T.	.02	.02		.09					.58	.23		.46		.03			.29	.20		.04	.03	.05	.08	4.12			
Lockport.....	Lake Ontario.....	.41	.07			T.	.05	.24		.13					T.	.15	.15		.09		.07		.55	.19		T.	.26		.20		2.21		
Lowville.....	Black.....	.10	.14	1.14	.02					.08					.02		1.00		.25		.02		.03	.82	.51		.02		.05	.13	4.60		
Moir.....	St. Lawrence.....	.56	.02	.11		T.	.64	.21		.52	.28	T.			.60		.40	.40	.60	.26	.03	T.	.55	.28	.20	.63		.82	T.	7.11			
Nehasane.....	Black.....	.16	.04	.45	.02	.05	1.21			T.	.33			.03	.02	.67	.26		.27	.04	.13	.02	.26	.06	.55		.06	.35	.11	5.09			
North Lake.....	do.....	.42		.95		.50	.79			.20					1.73			.59	.10			.49		.83		.15	.44	.05	7.75				
Ogdensburg.....	St. Lawrence.....	.46		.17		.16	.50	T.		.20					.20	.38		.20	.11	.70			.52	.14	.10	.20	.14	.00	T.	4.78			
Old Forge.....	Black.....	.40	.03	1.17		.10	.08			.02	.10				.03	.90	.10		.27	.09			.40	.06	.78		.10	.38	.06	5.07			
Oswego.....	Lake Ontario.....	.18	.03		.86					T.	.40				.01	.74		.32	.01	.01			.83	.46	.05	.10		.10	.14	.26	4.50		
Otto.....	Lake Erie.....	.69	.15			.08				.17	.28				.08	.18				.06								.09		1.78			
Palermo.....	Lake Ontario.....	.10	.10	.30		.05	1.40			.10					.58	.60		.28	.05				.41	1.00	.35	.10		.05	.31	.42	6.20		
Perry City.....	Oswego.....	1.87	.24		.33					.16	.28				.30	.33	.15		.13	.23	.10		.75	1.08	.20	.14		.45	.10	6.84			
Philadelphia.....	St. Lawrence.....	.15</																															

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 4, Lake Region.

Date.	Lower Michigan.						Ohio.								Erie, Pa.	New York.								Vermont.				
	Detroit.		Muskegon.		Saginaw, West Side.		Cleveland.		Lima.		Sandusky.		Toledo.			Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1....	89	74	82	69	87	65	88	72	91	73	91	71	92	76	84	62	76	59	58	47	82	58	77	58	60	42	57	36
2....	89	71	81	70	83	70	85	70	91	72	92	71	91	72	82	68	75	64	72	56	78	58	73	59	62	54	56	50
3....	79	64	77	61	76	57	74	68	83	69	76	69	80	67	79	68	81	63	69	63	78	64	76	61	69	57	68	53
4....	78	63	82	61	82	62	75	69	84	64	78	70	80	65	84	68	85	64	76	60	82	61	81	58	78	62	79	54
5....	86	63	86	71	90	66	86	70	91	65	90	69	91	68	82	69	77	68	73	58	85	66	79	66	68	61	72	50
6....	91	70	87	70	92	69	87	72	92	69	91	74	93	74	82	70	79	69	69	60	79	70	76	66	73	57	77	54
7....	79	67	82	62	85	61	78	64	82	67	77	65	80	67	78	67	78	68	80	61	80	61	80	65	77	56	71	51
8....	82	65	87	60	85	56	77	58	86	54	79	60	87	63	76	60	74	64	75	56	81	57	76	62	77	58	75	50
9....	90	70	88	71	92	64	84	66	89	60	87	68	93	67	81	67	80	67	72	54	77	62	78	62	69	51	69	46
10....	92	71	88	70	92	68	88	70	91	63	91	72	94	72	86	70	81	70	82	53	90	65	85	57	74	51	76	43
11....	77	56	74	60	76	60	77	62	79	65	76	64	79	59	78	62	74	58	75	44	73	59	78	53	75	51	76	48
12....	73	52	72	49	76	47	65	57	72	54	68	58	74	53	66	57	67	53	61	39	70	52	66	45	62	43	63	38
13....	75	50	73	55	73	54	74	53	78	48	74	53	73	56	76	54	75	59	72	44	76	54	73	55	70	47	71	44
14....	77	62	75	64	74	59	81	67	84	53	78	64	78	63	77	69	74	66	73	61	75	66	76	64	67	60	69	50
15....	75	59	70	63	68	62	73	67	77	61	73	66	76	62	79	64	78	60	76	55	77	61	79	62	74	54	78	58
16....	65	54	67	50	65	50	67	54	69	57	66	56	66	54	65	57	63	54	62	42	61	49	62	47	59	42	61	38
17....	66	54	67	55	65	53	72	52	74	53	71	52	73	53	67	51	67	52	65	43	68	46	69	44	66	41	68	34
18....	71	58	66	52	69	58	72	63	72	58	73	58	73	58	71	62	71	59	63	48	75	59	76	57	64	48	68	45
19....	60	49	62	48	58	47	65	54	48	45	64	51	64	50	68	55	67	55	66	56	73	56	73	57	64	61	67	56
20....	73	51	70	53	72	50	74	55	75	49	76	54	75	53	68	54	66	53	66	46	66	54	65	51	61	48	65	48
21....	76	60	67	57	79	55	81	58	79	51	81	56	79	57	79	58	73	53	52	44	64	51	65	48	54	47	53	46
22....	66	51	67	52	66	53	68	57	54	67	53	67	52	75	62	75	62	71	40	75	55	66	55	63	50	63	47	47
23....	67	48	67	40	71	45	64	56	70	45	67	53	66	49	63	55	64	54	60	58	63	57	60	54	58	55	59	52
24....	66	56	71	41	67	49	68	61	70	49	69	60	71	58	69	60	68	58	69	57	62	59	65	52	64	55	63	53
25....	80	57	71	54	79	57	78	57	81	54	82	55	81	58	79	62	77	63	63	49	77	58	65	51	65	49	64	40
26....	60	42	55	46	71	43	69	53	45	68	50	61	45	64	55	68	50	71	47	74	82	68	55	69	49	69	36	36
27....	58	39	54	35	55	35	56	47	61	35	58	42	63	39	55	46	57	44	58	45	57	45	56	48	62	49	58	38
28....	57	44	50	39	50	40	63	46	68	37	64	46	64	47	64	45	58	46	56	37	59	43	61	41	55	44	55	35
29....	56	42	55	35	56	35	56	51	44	56	47	56	43	54	48	50	42	48	35	52	42	54	37	46	36	48	35	35
30....	57	41	60	40	56	37	57	42	59	32	59	40	61	41	56	41	57	41	52	31	56	36	54	36	50	35	50	33
Mns..	73.7	57.1	71.8	55.4	73.7	54.2	73.4	59.7	78.8	54.9	74.7	58.9	76.0	58.0	72.9	59.5	71.2	57.9	66.5	49.5	72.2	55.9	70.4	54.2	65.2	50.4	65.6	45.4

Date.	Duluth, Minn.		Wisconsin.						Chicago, Ill.		Fort Wayne, Ind.		Upper Michigan.										Lower Michigan.					
			Florence.		Green Bay.		Milwaukee.						Escanaba.		Ewen.		Houghton.		Marquette.		Sault Ste. Marie.		Alpena.		Battle Creek.		Cadillac.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	58	53	74	54	84	61	88	66	93	78	93	75	69	56	.....	.....	62	54	74	52	63	57	82	61	89	74	78	64
2.....	76	55	74	61	80	63	80	69	86	71	93	70	78	58	.....	.....	69	51	73	57	66	54	80	57	90	73	77	67
3.....	67	55	78	40	74	57	73	63	74	68	84	68	71	52	.....	.....	72	47	69	51	75	50	71	53	84	68	78	53
4.....	70	59	.....	.....	74	59	76	65	83	71	84	62	65	54	.....	.....	75	54	70	56	74	51	69	53	86	61	72	60
5.....	77	59	86	49	88	68	94	73	94	77	94	69	79	64	.....	.....	82	62	87	65	82	63	82	65	90	67	79	66
6.....	78	60	81	59	86	69	93	72	94	76	93	72	87	59	.....	.....	77	62	83	63	82	56	94	63	90	79	87	65
7.....	80	57	82	50	81	61	80	68	78	73	81	63	75	53	.....	.....	77	58	85	61	75	50	84	57	85	65	81	70
8.....	69	60	78	59	82	64	92	66	89	71	88	60	72	60	.....	.....	81	56	77	61	73	51	77	55	90	61	79	58
9.....	79	57	90	59	90	71	93	73	91	75	91	65	80	63	.....	.....	82	60	86	62	71	60	73	64	92	74	89	65
10.....	70	55	72	63	80	67	86	71	93	75	92	68	78	58	.....	.....	71	57	77	57	72	56	91	65	92	63	84	67
11.....	70	50	67	48	70	57	71	59	78	67	77	58	68	52	.....	.....	66	50	63	53	60	49	65	49	81	65	72	55
12.....	78	54	76	51	79	54	78	66	73	60	72	52	69	52	.....	.....	73	57	71	58	70	48	77	48	75	47	74	48
13.....	69	51	73	52	71	61	73	62	76	63	78	54	70	58	.....	.....	68	55	75	61	74	51	74	54	78	54	69	58
14.....	65	44	69	56	75	61	74	63	73	66	86	62	70	58	.....	.....	64	50	70	53	73	57	79	60	75	60	76	61
15.....	56	46	64	49	68	53	68	61	71	66	80	64	64	49	.....	.....	54	45	57	48	66	47	65	53	74	65	71	58
16.....	52	48	56	49	61	50	64	58	69	62	72	56	57	48	.....	.....	57	48	57	48	61	41	60	49	69	50	66	46
17.....	57	42	.....	.....	62	55	64	56	68	60	68	58	59	54	.....	.....	58	50	58	52	60	48	62	51	65	55	61	53
18.....	64	44	61	45	60	52	62	49	66	51	70	51	64	50	.....	.....	61	49	62	47	62	52	68	57	69	60	67	56
19.....	60	44	62	46	63	51	67	48	68	51	64	49	57	51	.....	.....	61	47	56	49	63	49	63	52	61	48	63	44
20.....	54	42	67	49	67	51	67	55	76	58	77	51	64	49	.....	.....	64	53	67	49	66	45	65	47	71	50	67	49
21.....	54	39	61	48	55	49	61	51	69	54	81	56	63	50	.....	.....	56	49	60	48	70	55	67	62	75	55	66	59
22.....	54	42	58	47	60	49	66	48	69	54	63	51	61	44	.....	.....	57	48	62	48	62	47	63	50	66	50	63	53
23.....	56	43	62	38	70	47	67	53	70	57	69	45	60	41	.....	.....	60	42	62	46	62	42	66	47	70	43	66	43
24.....	62	51	65	45	68	55	66	60	66	60	67	53	64	59	.....	.....	71	51	68	55	66	47	61	53	70	48	64	44
25.....	56	33	65	47	67	43	69	44	72	46	79	50	66	43	.....	.....	67	40	70	42	66	52	72	55	82	56	69	58
26.....	42	32	49	33	45	37	53	39	56	39	55	41	46	33	.....	.....	41	34	45	37	50	40	55	40	65	46	63	41
27.....	50	31	45	29	49	37	51	41	64	47	62	37	46	30	.....	.....	41	32	44	34	47	35	48	35	59	34	46	36
28.....	53	34	50	24	47	35	46	40	55	50	64	47	50	33	.....	.....	53	31	47	34	46	35	51	31	52	42	48	29
29.....	48	30	49	27	53	35	57	38	54	44	56	42	51	31	.....	.....	43	38	48	36	49	30	55	35	54	37	56	29
30.....	61	34	56	32	59	37	59	40	61	43	60	35	57	36	.....	.....	49	40	53	39	49	36	52	36	59	38	52	38
Mns .	62.8	46.8	66.8	46.8	68.9	53.6	71.3	56.9	74.3	61.1	76.4	56.1	65.3	49.9	.....	.....	63.7	49.0	65.9	50.7	65.2	48.5	69.0	51.9	75.3	56.3	69.4	53.1

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

C. A. DONNEL, Acting District Editor.

## GENERAL SUMMARY.

The feature of the month was the warm term covering the first decade. In several respects this was a remarkable period of high temperature. Over much of the southern half of the district not only was it the warmest decade of the entire summer of 1912, but it was the warmest decade in September on record. At Davenport, Iowa, the 12-day period ending on the 10th, when compared with normal conditions, was the warmest period of like length in the history of that station, the departure of the mean temperature from the normal averaging  $14^{\circ}$  a day. Although the average precipitation for the whole district was practically the normal amount, there were wide variations in the distribution even in the individual States. Toward the close of the month heavy to killing frosts occurred over the entire district, except in southern Illinois. Great damage to late crops resulted therefrom in the North Dakota area. In that State the weather of the month was very unfavorable, being cool, cloudy, and wet, and all kinds of outdoor occupations were greatly interfered with.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within District 5.	Temperature.					Precipitation.				
	Mean.	Departure.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average snow-fall.	Average number of days with precipitation.
North Dakota.....	51.7	-3.8	101	18	3.15	+1.22	7.67	1.11	0.6	9
Minnesota.....	57.3	-1.0	98	15	3.08	-0.41	6.42	0.95	1.0	10
South Dakota.....	55.5	-5.1	96	24	1.60	+0.01	1.87	1.32	2.3	8
Wisconsin.....	60.0	-0.2	96	20	3.76	+0.39	6.23	1.31	T.	10
Iowa.....	62.5	-1.0	104	27	3.84	+0.48	9.32	0.60	T.	11
Missouri.....	67.6	-0.6	102	28	2.82	-1.01	4.05	1.79	0	5
Indiana.....	66.3	+1.7	97	31	2.94	-0.50	4.32	1.58	0	9
Illinois.....	66.3	+0.9	103	27	2.74	-0.91	5.78	0.80	0	8

## TEMPERATURE.

Two sharply contrasted periods marked the temperature conditions of the month. That extending over the first decade was attended at some stations in southern sections by the highest temperatures of the entire summer. The whole period was abnormally warm, the average daily excess of mean temperature exceeding  $10^{\circ}$ . In Illinois several heat prostrations occurred. After the 10th the weather became cooler, and the temperature averaged below the normal almost every day for the remainder of the month. As a result of this more extended period of cool weather the month as a whole goes

on record as slightly cooler than the average September. However, in eastern Iowa, part of the Wisconsin area and in Illinois and Indiana the mean temperature was above the normal, but in no case was the average daily excess above  $3^{\circ}$ . The mean temperature for the district was  $60.7^{\circ}$ , or  $0.6^{\circ}$  less than the normal. In the western North Dakota area the month was the coolest September on record, the departure of the mean temperature from the normal being almost  $8^{\circ}$ . The lowest monthly mean temperature,  $47.1^{\circ}$ , occurred at Granville, N. Dak., and the highest monthly mean was  $73.0^{\circ}$ , at Cobden, Ill. In all cases the highest monthly temperatures occurred within the first decade. The 2d was the only day of this period on which a monthly maximum temperature did not occur at some station. The highest temperature reported was  $104^{\circ}$ , at Ottumwa, Iowa, on the 8th. Sixteen other stations reported a temperature of  $100^{\circ}$  or higher. The last six days of the month were marked by cool, frosty weather, and the lowest temperatures of the month in all cases were reported at that time. Freezing temperature occurred at practically all stations except those in southern Illinois. The lowest temperature reported was  $15^{\circ}$ , at Roseau, Minn., on the 29th.

## PRECIPITATION.

The geographical distribution of the precipitation was decidedly irregular, and in each of the larger State areas the monthly amounts varied by as much as 5 inches. Generally speaking, however, the month was wettest in the southwestern Iowa area, and driest in southern Minnesota. The average precipitation for the entire district was 3.31 inches, or only 0.04 inch less than the normal. The greatest monthly amount, 9.32 inches, occurred at Guthrie Center, Iowa, and the least monthly amount was 0.60 inch, at Ottumwa, in the same State. In point of time the distribution was fairly good, except over the southeastern quarter of the district, where the first 13 days were exceedingly dry. In northwestern Illinois roads became very dusty, pastures were brown, and small streams dry. The drought was broken on the night of the 14th-15th. The average number of rainy days was 9. Eighteen stations, most of which are in Wisconsin, reported excessively heavy precipitation at the rate of 2.5 inches or more within a 24-hour period. There was about the average thunder-storm frequency, but the month was comparatively free from severe storms of that class.

*Snow.*—Snow fell in measurable quantities over the northern part of the district toward the end of the month, and a trace was reported as far south as central Iowa. At one station in the North Dakota area and four in Minnesota the monthly snow fall was 6 inches.

## RIVERS.

The important event in the month was the flood in the Wisconsin River, which is described elsewhere in a special article. This was the third flood of the summer in that river. The reports received indicate good stages in the Mississippi throughout the month, and at the close the river at Davenport was slightly lower than at the end of August.

## MISCELLANEOUS.

Southwesterly winds prevailed, but in the north the direction was mostly northwesterly. The highest velocity reported was 37 miles an hour, from the south, at St. Paul, Minn., on the 9th. This is somewhat lower than the highest velocity usually reported in September. For the district as a whole about the average amount of sunshine was experienced. The normal percentage is about 60. The average number of clear days was 13; partly cloudy, 8; cloudy, 9.

## WISCONSIN RIVER FLOOD, SEPTEMBER, 1912.

By JAMES H. SPENCER, Local Forecaster.

From about 2 to 3.50 inches of rain in the Merrill-Wausau section of the Wisconsin Valley within 12 hours on Saturday night, August 31, caused the third flood of the summer of 1912 in the Wisconsin River. The flood was preceded by weeks of heavy rains, and the soil was thoroughly soaked and small streams were considerably swollen before the storm occurred that caused the flood. Losses from the flood in the Dubuque River district as a whole will aggregate \$50,000 to \$75,000, possibly more.

The river at Wausau rose from a stage of about 6 feet before the storm to 10.4 feet on the morning of September 1st, and to a crest stage of 12.6 feet at about 10 p. m. of the same date. The rise at and near Merrill was about the same as at Wausau. The river rose nearly 7 feet in three days at Grand Rapids to a crest stage of 11.3 feet on the 4th; and it rose 6 feet at Portage in five days to a crest stage of 11.9 feet on the 7th.

In the lower Wisconsin Valley the flood was the worst of the year, though it did not equal that of October, 1911. The storm that caused the flood also caused washouts that derailed two trains in northern Wisconsin, resulting in the death of a number of persons.

## DAMAGE AT MERRILL AND WAUSAU.

Losses from the flood in the Wausau-Merrill section were very light compared to the July flood of this year. Postmaster F. W. Kubasta, of Merrill, reports the losses in that vicinity as follows:

Most of the damage was done to the filling of the dam of the Grandfather Falls Co. They had just about finished the repairs made necessary by the July flood when it was again washed out by the September flood. It is estimated that the damage will be about \$3,000. The same is true of the Merrill Railway & Light Co. They had just about completed a large retaining wall 4 feet thick of solid stone and concrete construction when the flood washed out a section about 40 feet in length. The damage to this property, and the filling thereto, will approximate \$4,000. The damage to railroad tracks, by reason of being washed out, will possibly be \$5,000.

Postmaster A. W. Trevitt, of Wausau, says:

There was but little loss here by the September flood. The only damage was about \$1,000 each to the Chicago & Northwestern Railroad and the Chicago, Milwaukee & St. Paul Railroad; also a loss of about \$500 to the Wausau Street Railway Co.

There was no material loss between Rothschild and Kilbourn, except some to crops on lowlands. From Kilbourn to the mouth of the river the highest water was only about a foot lower than in October, 1911, and large quantities of uncut hay and many fields of corn, potatoes, etc., were swept away. For instance, in the vicinity of Sauk City lowlands 3 miles from the river bed were flooded.

At Portage the levees, which protect property valued at hundreds of thousands of dollars, were strengthened upon receipt of the warnings of the Weather Bureau. Correct stages were predicted three to five days in advance, and Mr. H. S. Rockwood, editor of the Portage Daily Democrat, says: "The telegrams of river conditions were valuable and timely aids to the dwellers of this land of flood." The only serious loss at Portage was to crops on lowlands, amounting to about \$7,000.

## WARNINGS ISSUED.

At 2 a. m. of September 1, the following telegram, based on a midnight observation of heavy rain at Medford, Wis., was sent to Wausau: "Rainfall very heavy at Medford. Watch conditions at Wausau." No other warnings could be issued, as the river rose to flood stage at Wausau by the time observations were taken and telegraphed by river and rainfall observers in the Merrill-Wausau section, except Medford.

Forecasts and warnings were issued for towns from Stevens Point to Dubuque 2 to 10 days in advance of the flood crest. They were of much value, and helped greatly in saving property probably equal in value to the total losses from the flood. Much hay in stack and other crops were saved; a large amount of stock was removed to safety from lowlands and islands, and loss to considerable other property was prevented.

The following extracts relative to the flood and the warnings issued are from some of the letters received:

Magnus Swenson, president Wisconsin River Power Co., Prairie du Sac, Wis.: "We wish to express our appreciation of the valuable service the Weather Bureau has rendered in keeping us informed with reference to the floods in the Wisconsin River. The predictions have not only been very accurate, but we have received them in ample time to enable us to prevent serious damage and loss."

Max H. Ninman, Sauk City, Wis.: "Cattle, principally young stock, which are pastured on the lowlands and adjacent islands, were taken home to the farmers' yards in time to save them, thanks to the warnings sent out by the Weather Bureau, which were transmitted to the farmers along the route by the carriers, and by telephone."

Boscobel, Wis.: "Farmers were able to save hay that was cut and some in stack; also a good many boats that would have sustained injury had the warnings not been sent."

L. E. Hammonds, Woodman, Wis.: "Farmers and stockmen made a great saving by the warnings sent me."

A. C. V. Elston, Muscoda, Wis.: "Warnings appreciated. Cattle and other stock moved to prevent loss. Large hay loss, amounting to several thousand dollars."

Warnings issued 7 to 10 days in advance of the flood crest from Dubuque to Prairie du Chien were verified within two-tenths of a foot, and Government contractors, the United States engineers, and others were given abundant time to prepare for high water without loss. Many farmers saved crops and other property; for instance, one Dubuque County farmer harvested 25 acres of millet after the warnings were issued. A week later the field was under water.

The crest stage at Dubuque was 10.7 feet, the highest in September in 27 years, with one exception. The river between Dubuque and Prairie du Chien was only a few tenths of a foot lower than at Dubuque.

TABLE 1.—Climatological data for September, 1912. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>North Dakota.</b>																				
Amenia.....	Cass.....	954	15	54.6	- 2.4	93 <sup>a</sup>	5	27	26 <sup>†</sup>	42 <sup>a</sup>	6.54	+ 4.81	1.57	1.0	12	14	5	11	nw.	C. E. Wood.
Bottineau.....	Bottineau.....	1,638	17	49.4	- 7.7	82	5	19	29	41	2.60	+ 1.09	0.62	0	10	6	8	16	nw.	W. M. Mills.
Bowbells.....	Burke.....	1,958	11	49.8	.....	80	4	23	28	45	3.12	.....	1.10	0	10	19	1	10	.....	G. H. Phelps.
Cando.....	Towner.....	1,488	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. T. Judd.
Crosby.....	Divide.....	6	6	48.9	.....	79	8	20	29	42	1.90	.....	0.94	T.	8	19	2	9	nw.	H. C. Kaschau.
Devils Lake.....	Ramsey.....	1,482	7	51.4	- 4.2	84	3	23	26	34	1.11	- 0.28	0.47	T.	10	8	8	14	w.	U. S. Weather Bureau.
Donnybrook.....	Ward.....	1,700	13	49.4	- 6.2	83	4	23	25 <sup>†</sup>	39	3.20	+ 1.90	1.57	0	7	11	4	15	nw.	C. J. DeVore.
Dunseith.....	Rosette.....	15	15	49.7	- 5.3	81	4 <sup>†</sup>	20	29	39	3.18	+ 1.51	0.70	0.5	11	9	8	13	nw.	C. E. Goodsell.
Edmore.....	Ramsey.....	1,524	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. M. Van Osdel.
Fessenden.....	Wells.....	1,610	7	51.3	.....	92 <sup>a</sup>	3	20	29	49 <sup>a</sup>	2.17	.....	0.90	T.	6	11	4	15	nw.	G. T. Seymour.
Forman.....	Sargent.....	1,249	18	53.8	- 4.4	95	8	21	27	40	1.99	+ 0.19	0.70	2.0	8	15	3	12	nw.	A. Maltby.
Grafton.....	Walsh.....	827	21	53.2	- 2.4	94	5	22	28	42	2.11	+ 0.13	0.33	0.2	11	12	8	10	w.	A. R. T. Wylie.
Granville.....	McHenry.....	1,504	6	47.1	.....	84	4	18	29	41	2.23	.....	0.55	T.	8	12	7	11	nw.	W. A. Christianson.
Hannah.....	Cavalier.....	1,568	7	49.3	.....	85 <sup>a</sup>	5	19 <sup>a</sup>	26	35 <sup>a</sup>	7.67	.....	2.40	T.	8	.....	.....	.....	.....	J. Moffatt.
Hansboro.....	Towner.....	4	4	50.6	.....	79	5	22	26 <sup>†</sup>	37	3.87	.....	1.45	T.	11	18	4	8	nw.	Geo. Dale.
Hillsboro.....	Trall.....	901	7	55.2	.....	93	5	26	29	45	6.53	.....	1.51	T.	13	10	10	10	nw.	F. E. Mayall.
Lakota.....	Nelson.....	1,579	6	50.3	.....	89	5	20	29	37	1.43	.....	0.50	6.0	7	.....	.....	.....	.....	C. R. Pettis.
Langdon.....	Cavalier.....	1,615	17	49.5	.....	83	5	22	26	37	4.98	.....	1.82	.....	9	11	0	19	w.	J. Woolner.
Larimore.....	Grand Forks.....	1,134	17	52.0	- 3.1	89	3	23	29	42	3.09	+ 1.59	1.05	3.0	14	14	3	13	n.	J. M. Freeman.
Lisbon.....	Ransom.....	1,091	8	53.4	- 5.0	94	5 <sup>†</sup>	22	27	54	2.95	+ 1.24	0.94	0.5	12	17	2	11	nw.	W. S. Adams.
McKinney.....	Renville.....	1,640	18	51.0	- 2.1	86	4	20	25	42	2.94	- 1.41	1.05	0	7	7	13	10	nw.	N. P. Swenson.
McLeod.....	Ransom.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.77	1.0	8	11	8	11	nw.	Martin Reinhold.
Manfred.....	Wells.....	1,605	11	51.8	.....	90	3 <sup>†</sup>	20	29	40	1.65	.....	0.61	T.	6	14	8	8	nw.	P. B. Anderson.
Mayville.....	Trall.....	975	16	54.0	- 1.4	92	5	25	29	38	6.33	+ 3.71	1.45	T.	11	16	0	14	nw.	W. C. Gould.
Minot.....	Sargent.....	1,097	14	50.2	- 7.4	85	5	22	29	41	2.13	+ 0.93	0.59	1.0	9	10	6	14	n.	H. J. Edman.
Minto.....	Walsh.....	1,557	19	54.1	- 2.0	92	5	24	29	38	3.49	+ 1.33	1.04	.....	9	10	8	12	nw.	W. J. Ellison.
Oriska.....	Barnes.....	820	7	53.2	.....	92	5	25	29	36	3.45	.....	0.94	T.	13	6	19	5	nw.	S. S. Marsh.
Park River.....	Walsh.....	1,270	9	53.7	.....	91	5	25	29	38	1.66	.....	0.50	T.	11	8	10	12	nw.	J. J. Taylor.
Pembina.....	Pembina.....	998	14	50.8	- 2.9	88	5	24	26	44	1.55	- 0.78	0.46	0	9	14	1	15	w.	P. J. Prochaska.
Power.....	Richland.....	789	20	53.5	- 4.7	93	5	22	26	41	3.01	+ 1.25	1.26	1.0	8	13	6	11	w.	C. W. Shumaker.
Pratt.....	McHenry.....	1,020	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. A. Power.
Towner.....	do.....	4	4	51.4	.....	83	4 <sup>†</sup>	21	29	44	2.51	.....	0.73	1.3	7	7	11	12	nw.	W. B. Ahern.
University.....	Grand Forks.....	830	20	53.7	- 1.7	92	5	24	29	35	5.97	+ 3.87	1.64	2.0	13	7	8	15	n.	B. Bagley.
Wahpeton.....	Richland.....	962	20	56.4	- 2.3	101 <sup>a</sup>	8	25 <sup>a</sup>	27 <sup>a</sup>	58 <sup>a</sup>	1.75	- 0.38	0.60	.....	7	14	2	14	nw.	U. S. Weather Bureau.
Walhalla.....	Pembina.....	966	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Fred E. Smith.
Westhope.....	Bottineau.....	6	6	50.8	.....	83	4	22	29	47	2.32	.....	0.62	0	8	6	18	6	nw.	Ivanhoe Lee.
Willow City.....	do.....	1,471	19	51.8 <sup>a</sup>	- 2.5	82 <sup>a</sup>	4	20	29	46 <sup>a</sup>	2.99	+ 1.26	0.84	0	8	.....	.....	.....	.....	W. A. Meddaugh.
<b>Minnesota.</b>																				
Albert Lea.....	Freeborn.....	1229	21	61.3	+ 0.3	95	8	29	26	36	1.65	- 1.75	0.70	0	4	10	15	5	se.	Edward Carey.
Alexandria.....	Douglas.....	1391	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P. O. Unumb.
Angus.....	Polk.....	870	10	52.8	- 3.0	92	5	20	29	46	6.18	.....	1.58	1.5	10	11	7	12	w.	John Nadvornik.
Bagley.....	Clearwater.....	6	6	51.8	.....	91	8	23	27 <sup>†</sup>	41	4.97	.....	1.30	6.0	9	11	12	7	sw.	Jens Nelson.
Baudette.....	Beltrami.....	1,084	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. S. Dahlquist.
Beardsley.....	Bigstone.....	1,090	16	56.9	- 2.6	98	8	24	27	46	2.87	- 0.92	0.60	2.0	9	10	12	8	nw.	G. L. Fitzgerald.
Beaulieu.....	Mahnomen.....	1,200	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Dr. P. A. Slattery.
Bemidji.....	Beltrami.....	1,400	9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. W. Warfield.
Bird Island.....	Renville.....	1,039	22	59.7	- 1.1	95	8	26	27	38	2.01	- 0.95	0.78	T.	8	12	6	12	sw.	Dr. F. L. Puffer.
Brainerd.....	Crow Wing.....	1,215	5	58.3	.....	92	8	25	28	33	1.61	.....	0.62	0	7	13	4	13	se.	Theodore Miller.
Caledonia.....	Houston.....	1,179	19	60.6	0.0	89	9	23	26	26	3.00	- 1.00	1.30	0	12	15	5	10	sw.	W. D. Belden.
Campbell.....	Wilkin.....	984	6	54.4	.....	98	8	24	27	48	3.51	.....	1.37	1.0	10	16	1	13	se.	J. T. Neisess.
Cass Lake.....	Cass.....	1,300	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.66	.....	8	.....	.....	.....	.....	C. W. Burns.
Collegeville.....	Stearns.....	1,282	19	59.3	- 1.2	91	5 <sup>†</sup>	29	26	33	2.27	- 0.25	0.61	0	11	15	11	4	nw.	F. Tembreull.
Crookston.....	Polk.....	863	23	53.6	- 2.9	92	5	27	29	39	6.39	+ 4.39	1.90	3.0	12	14	4	12	s.	A. G. Andersen.
Detroit.....	Becker.....	1,364	16	53.6	- 2.8	94	8	25	29	46	4.92	+ 2.26	1.50	3.0	10	15	6	9	se.	G. W. Peoples.
Ely.....	St. Louis.....	1	1	56.6	.....	88	5	28	27	30	6.35	.....	3.72	T.	12	10	11	9	nw.	Iver Wisted.
Fairmont (near).....	Martin.....	1,240	25	59.8	- 1.0	90	5 <sup>†</sup>	29	26	30	2.34	- 0.77	0.62	T.	10	14	9	7	s.	W. F. Wherland.
Faribault.....	Rice.....	1,063	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Alice Chambers.
Farmington.....	Dakota.....	902	24	60.8	+ 0.4	96	5 <sup>†</sup>	27	27	36	1.90	- 1.56	1.05	0	8	14	3	13	sw.	E. D. Akin.
Fergus Falls.....	Otter Tail.....	1,210	20	56.8	- 2.1	92	5 <sup>†</sup>	26	26	34	3.82	+ 1.50	0.99	2.0	10	11	8	11	se.	C. E. Kissinger.
Fort Ripley.....	Crow Wing.....	1,136	4	57.0	.....	94	8	20	28	39	1.95	- 0.38	0.47	0	8	12	0	18	s.	J. Tucker.
Fosston.....	Polk.....	1,289	12	53.6	.....	89	5	23	29	34	5.19	.....	1.20	6.5	13	10	11	9	se.	O. N. Hem.
Glencoe.....	McLeod.....	1,000	15	61.3	+ 1.6	93	5 <sup>†</sup>	27	27	35	1.55	- 2.04	1.00	0	4	16	13	1	s.	F. B. Reed.
Grand Meadow.....	Mower.....	1,338	24	60.5	+ 0.6	93	8	27	26	38	1.82	- 1.58	0.34	0.2	12	9	14	7	nw.	C. F. Greening.
Gull Lake Dam.....	Cass.....	1,215	1	57.7	.....	91	8	24	28	34	2.29	.....	0.75	0	9	10	13	7	nw.	U. S. Engineer Corps.
Hallock.....	Kittson.....	815	13	53.2	- 1.9	91	5	22	29	39	3.50	+ 0.60	1.50	T.	11	8	1	21	n.	D. A. Robertson.
Halsted.....	Norman.....	870	6	52.3	.....	94 <sup>a</sup>	5	22	29	43	6.09	.....	1.43	.....	14	16	1	13	sw.	A. G. Holstrom.
Hinckley.....	Pine.....	1,050	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. R. Newman.
International Falls.....	Koochiching.....	1,112	9	55.4	.....	92	5	27	27	33	4.40	.....	0.90	2.0	10	8	6	16	s.	C. Ardies.
Itasca State Park.....	Clearwater.....	1,500	1	57.6	.....	94	9	26	28	50	3.59	.....	1.10	.....	14	9	11	10	n.	J. A. Stillwell.
Lake Crystal.....	Blue Earth.....	.....	4	60.4	.....	92	8	29	25	31	2.39	.....	0.80	0	5	16	10	4	nw.	W. P. Cobb.
Leech Lake Dam.....	Cass.....	1,301	24	55.6	+ 0.3	91	8	26	28 <sup>†</sup>	35	3.24	+ 0.39	0.64	0	15	8	12	10	nw.	U. S. Engineer Corps.
Littlefork.....	Koochiching.....	.....	2	52.2	.....</															

TABLE 1.—Klimatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Minnesota—Continued.</b>																				
Reeds Landing.	Wabasha.	681	16								2.81	- 1.18	0.68	0	8	14	0	16	se.	John Deschneau.
Rochester.	Olmstead.	901	7	59.8		93	8	27	20	42	1.50		0.40	0	10	11	11	8	s.	Mary P. Cram.
Roseau.	Roseau.	1,040	3	52.4		91	5	15	29	47	3.81		1.12	1.4	13	10	10	10	ne.	M. J. Hegland.
St. Charles.	Winona.	850	21	61.2	+ 0.2	93	8	30	26	34	4.33	+ 0.80	1.65	0	9	18	4	8	se.	S. W. Gleason.
St. Cloud.	Sherburne.	1,020	35	60.8	+ 1.5	95	5	27	28	36	1.78	- 1.53	0.64	0	10	20	8	2	w.	J. H. Capser.
St. Paul.	Ramsey.	940	41	60.7	+ 0.4	95	8	32	27	28	1.27	- 2.15	0.67	0	11	6	20	4	s.	U. S. Weather Bureau.
St. Peter.	Nicollet.	825	17	60.9	- 1.1	94	8	26	29	36	0.95	- 2.83	0.48	0	2	11	16	3	s.	State Hospital.
Sandy Lake Dam.	Aitkin.	1,234	19	56.0	- 0.6	89	5	27	28	36	1.85	- 0.86	0.81	0	9	8	16	6	w.	U. S. Engineer Corps.
State Sanatorium.	Cass.	4	4	55.8		89	5	29	27	38	2.69		0.60	T.	10	10	6	14	w.	Dr. L. B. Ohlinger.
Stillwater.	Washington.	694	6								2.35		0.72	0	10	16	4	10	nw.	Oscar Ostrom.
Taylor Falls.	Chisago.	759	5	60.4		93	8	26	27	32	2.44		0.92	0	8	18	6	6	sw.	Minneapolis Gen. Elec. Co.
Thief River Falls.	Pennington.	1,137	1	52.9		90	5	22	29	42	6.40		1.33	6.0	11	14	6	10	s.	E. W. Lown.
Tracy.	Lyon.	1	1	62.3		97	8	28	26	44	1.80		1.32		5	20	0	10	s.	E. D. Davis.
Warren.	Marshall.	859	1	52.2		95	5	22	29	52	5.38		1.43	5.0	11	4	8	14	s.	P. H. Holm.
Warroad.	Roseau.	1,069	2	48.4		91	5	17	27	47	6.42		2.00	6.0	12	11	7	12	w.	G. A. Sawyer.
Winnebago.	Fairbault.	1,100	14	60.6	- 1.3	95	8	29	26	36	2.79	- 0.37	0.95	0	8	9	13	8	se.	H. H. Haight.
Winnibigoshish.	Itasca.	1,300	24	56.2	- 0.1	90	8	29	34	3.66	+ 0.52	1.05	0	12	10	5	15	nw.	U. S. Engineer Corps.	
Winona.	Winona.	700	16	63.6	+ 1.5	96	8	30	29	32	3.61	- 0.07	0.99	0	8	16	8	6	nw.	P. C. Myers.
Worthington.	Nobles.	1,593	17	56.6	- 4.1	88	5	26	27	30	2.51	- 0.81	1.11	0	10	15	4	11	sw.	M. P. Mann.
Zumbrota.	Goodhue.	917	16	59.4	- 1.2	93	8	28	26	37	1.80		0.73	0	7	18	9	3	nw.	W. C. Rowell.
<b>South Dakota.</b>																				
Milbank.	Grant.	1,148	21	55.6	- 5.1	96	8	24	27	39	1.87	+ 0.01	0.79	2.3	8	15	5	10	nw.	I. T. Patridge.
Sisseton.	Roberts.	1,202	6	55.4		93	5	28	26	36	1.32		0.65		8	14	0	16	s.	George Gray.
<b>Wisconsin.</b>																				
Antigo.	Langlade.	1,489	18	58.6	+ 0.6	90	5	26	29	30	1.99		0.65	T.	9	18	2	10	w.	Elton C. Larzelere.
Barron.	Barron.	1,115	21	57.0	- 1.5	90	8	26	29	32	3.37	+ 0.25	1.09	0	7	18	9	3	w.	Wm. A. Kent.
Beloit.	Rock.	750	46	63.6	0.0	92	6	32	29	27	5.37	+ 1.98	2.25	0	10	16	4	10	s.	Smith Observatory.
Big St. Germain Dam.	Vilas.	1,590	2	56.6		91	5	24	28	41	2.91		0.79	0	10	12	13	5	sw.	Fred Hesse.
Brodhead.	Green.	812	14	64.1	+ 0.7	96	9	30	29	33	5.73	+ 2.10	1.12	0	10	17	8	5	sw.	Hector D. Kirkpatrick.
Burnett.	Dodge.	880	8	60.9		91	9	27	29	33	4.84		1.43	0	13	8	7	12	sw.	Geo. W. Smith.
Cornell.	Chippewa.	1,025	0								2.26		0.68	0	7	14	8	8	sw.	Brunet Falls Mfg. Co.
Cottage Grove.	Dane.	888	1								6.23		2.61	0	13	11	13	6	sw.	John E. Mellish.
Darlington.	Lafayette.	867	6	62.1		95	9	28	30	37	4.92		0.90	0	10	17	0	13	s.	F. J. O'Neill.
Deerskin Dam.	Forest.	1,685	2			91	8				3.46		1.13	T.	6	9	13	8	w.	Wm. E. O'Neal.
Delavan.	Walworth.	920	21	62.8	0.0	95	6	30	29	41	4.85	+ 1.44	2.71	0	9	14	6	10	sw.	Edwood S. Austin.
Dodgeville.	Iowa.	1,116	12	63.0	- 0.3	93	9	30	26	29	4.27	+ 1.76	1.20	0	8	16	1	11	se.	Thomas Gibbon.
Downing.	Dunn.	983	10	58.4	- 0.2	90	5	23	28	33	1.92	- 1.85	0.60	0	6	6	0	23	w.	Eugene F. Stoddard.
Eau Claire.	Eau Claire.	800	21	60.6	- 0.5	91	5	29	29	36	3.08	- 0.85	0.93	0	8	12	12	6	nw.	Robert D. Whitford.
Glen Flora.	Rusk.	1,475	0	57.6		90	5	23	29	34	3.27		1.20	T.	10	19	4	7	sw.	F. W. Oelschlaeger.
Grand Rapids.	Wood.	1,021	13	60.4	- 0.6	93	9	27	29	39	2.75	- 0.18	0.93	0	8	20	4	5	sw.	Willis B. Raymond.
Grantsburg.	Burnett.	1,095	21	60.6	+ 2.0	95	6	25	29	32	3.50	- 0.68	1.80	T.	7	12	4	14	sw.	Theodore Olsen.
Hancock.	Waushara.	1,091	20	62.6	- 1.6	92	9	31	29	30	5.31	+ 2.43	3.11	0	11	17	5	8	nw.	Frederick B. Hamilton.
Hatfield.	Jackson.	973	18	59.8	- 1.0	92	9	23	29	37	4.02	+ 0.53	2.13	0	7	5	14	11	sw.	Walter S. Woods.
Hayward.	Sawyer.	1,197	21	54.0	- 3.6	92	5	25	29	36	2.35	- 1.58	0.90	0	7	14	7	7	se.	Wm. E. Swain.
Hillsboro.	Vernon.	1,000	21	59.3	- 1.2	91	9	24	29	39	3.74	+ 0.69	0.92	0	8	12	15	3	sw.	Emil V. Wernick.
Koepenick.	Langlade.	1,683	21	58.6	- 0.3	88	5	24	29	32	4.80	+ 0.50	2.50	T.	10				sw.	Edward S. Koepenick.
Lac du Flambeau.	Vilas.	714	40	62.0	+ 0.3	93	9	32	29	31	1.61	- 2.51	0.58	0	11	9	12	9	s.	W. J. Lovett.
La Crosse.	La Crosse.	897	21	62.7	+ 0.3	94	5	30	29	32	4.79	+ 1.60	1.06	0	14	11	11	8	w.	U. S. Weather Bureau.
Lake Mills.	Jefferson.	1,070	21	62.9	+ 0.9	93	9	28	30	29	4.18	+ 0.87	0.85	0	10	2	15	10	w.	S. Newton Dexter Smith.
Lancaster.	Grant.	1,592	4	55.8		92	5	20	28	47	2.99		1.73	T.	12	13	9	8	w.	Edward Pollock.
Long Lake.	Oneida.	974	43	62.6	- 1.5	91	9	33	26	28	5.62	+ 2.44	2.71	0	16	12	9	9	sw.	Louis Frank.
Madison.	Dane.	962	8	60.0		92	9	29	29	38	3.67		1.51	0	12	10	7	13	w.	U. S. Weather Bureau.
Mather.	Juneau.	882	16	60.2	- 0.6	89	9	28	29	32	5.52	+ 2.36	2.30	0	10	18	8	4	nw.	Frank Evans.
Mauston.	do.	974	21	60.4	+ 0.1	93	9	24	29	37	3.67	+ 0.05	2.20	0	6	2	25	3	nw.	Eugene L. Hitchcock.
Meadow Valley.	do.	1,420	23	58.6	- 1.1	90	5	26	29	32	4.75	+ 0.70	2.80	0	6	19	7	4	w.	Charles H. Johnson.
Medford.	Taylor.	1,267	6	61.5		94	9	25	29	36	3.98		1.90	0	9	19	4	6	nw.	Wm. Zeit.
Merrill.	Lincoln.	1,604	8	58.0		89	5	27	28	41	2.42		0.45	T.	14	8	14	8	n.	Wm. T. Hunter.
Minocqua.	Oneida.	738	4	59.6		93	8	27	29	31	1.88		0.68	0	11	19	5	6	nw.	Benjamin W. Applebee.
Mondovi.	Buffalo.	1,226	8	61.4		92	5	28	26	35	5.20		1.60	0	12	12	9	9	sw.	Dr. Charles Hebard.
Mount Horeb.	Dane.	666	3	62.8		94	9	31	29	33	4.30		1.70	0	13	17	0	13	sw.	W. M. Lewis.
Muscoda.	Grant.	996	22	60.8	+ 1.4	94	5	25	29	40	3.13	- 0.64	1.85	0	5				nw.	Wm. Hessler.
Neillsville.	Clark.	990	7	59.2		95	5	25	27	37	4.13		2.32	0	10	13	14	3	nw.	Wm. Heaslett.
New Richmond.	St. Croix.	806	21	59.8	- 0.1	95	8	25	27	49	1.92	- 2.13	0.90	0	7	19	6	5	n.	Franc A. R. Van Meter.
Osceola.	Polk.	1,492	21	56.6		91	5	26	28	38	3.83		0.95	T.	12	17	7	5	s.	Charles W. Staples.
Park Falls.	Price.	809	23	63.4	+ 2.1	92	8	33	29	30	4.45	+ 1.62	0.94	0	13	18	8	4	nw.	Flambeau Paper Co.
Portage.	Wood.	969	2	61.0		93	1	26	28	34	3.49		1.47	0	10	13	7	10	w.	James H. Martin.
Port Edwards.	Crawford.	690	21	63.2	- 0.6	95	9	33	29	31	3.52	+ 0.08	0.84	0	10	9	5	16	s.	Nekoosa-Edwards Paper Co.
Prairie du Chien.	Sauk.	750	4	63.4		94	5	33	30	32	4.00		1.04	0	13	11	12	7	sw.	James A. Gillis.
Prairie du Sac.	Price.	1,551	14	57.8	+ 1.0	90	9	24	28	42	3.91	+ 0.05	1.81	T.	13	12	5	13	w.	Wis. Riv. Power Co.
Prentice.	Oneida.	1,550	6	58.4		92	5	26	28	36	4.58		1.56	T.	12	15	6	9	se.	Joseph G. Lash.
Rhineland.	Lafayette.	1,019	6	62.2		91	8	29	29	30	5.05		1.32	0	10	13	3	14	sw.	Rhineland Power Co.
Solon Springs.	Douglas.	1,083	6	55.8		93	5	24	27	37	2.20		1.00	0	5	12	9	9	sw.	Harrison B. Chamberlin.
Spooner.	Washington.	1,104	18	57.6	- 2.2	90	8	28	27	29	1.40	- 1.77	0.39	0	8	16	5	9	sw.	John M. Sayles.
Stanley.	Chippewa.	1,082	8	58.6		90	8	24	29	32										

TABLE 1.—Climatological data for September, 1912. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Iowa—Continued.</i>																				
Alta.....	Buena Vista.....	1,513	21	59.4	- 3.5	92	8	29	26	35	3.62	+ 0.44	0.87	0	13	12	11	7	s.	David E. Hadden.
Amana.....	Iowa.....	721	36	63.0	+ 0.5	95	8†	29	26	33	3.01	- 0.24	0.68	0	11	13	10	7	sw.	C. Schadt.
Ames.....	Story.....	926	36	61.8	- 1.7	95	9	28	29	37	6.61	+ 3.22	2.43	0	13	12	11	7	sw.	Iowa State College.
Baxter.....	Jasper.....	998	12	62.1	- 0.9	101	8	27	26	36	6.90	+ 3.48	1.34	0	16	14	8	8	sw.	W. R. Vandike.
Belle Plaine.....	Benton.....	828	22	63.5	- 0.1	97	8†	29	29	35	4.87	+ 1.91	0.91	0	12	9	9	12	se.	S. P. Van Dike.
Belmond.....	Wright.....	2	2	60.2	.....	92	8	29	26	34	2.98	.....	0.88	0	9	3	18	9	sw.	Geo. P. Hardwick.
Bloomfield.....	Davis.....	5	5	66.4	.....	102	8	30	26	37	0.96	.....	0.27	0	8	13	0	17	sw.	Albert Power.
Bonaparte.....	Van Buren.....	21	65.8	- 1.6	100	5	30	26	38	3.78	- 0.26	1.60	0	12	.....	.....	.....	.....	.....	B. R. Vale.
Boone.....	Boone.....	1,134	7	59.6	.....	90	8†	30	26	31	5.94	.....	2.16	0	15	13	4	13	.....	C. F. Henning.
Britt.....	Hancock.....	1,236	15	60.2	- 1.5	93	8	27	26	36	3.52	- 0.22	1.25	0	14	9	17	4	s.	L. M. Goodman.
Buckingham.....	Tama.....	12	12	66.7	+ 0.5	100	8†	33	26	33	4.68	+ 1.09	1.13	0	10	13	7	10	nw.	J. S. Guynn.
Burlington.....	Des Moines.....	544	16	66.7	+ 0.5	100	8†	33	26	33	2.56	- 0.56	1.35	0	6	19	4	7	s.	Max. E. Poppe, jr.
Carroll.....	Carroll.....	1,265	22	58.6	- 4.4	91	7†	29	26	35	5.65	+ 2.76	1.78	0	14	11	11	8	nw.	Mrs. J. J. Wolfe.
Cedar Rapids.....	Linn.....	733	30	63.8	- 0.2	99	8	33	26	34	3.63	+ 0.81	0.67	0	11	14	4	12	w.	R. S. Toogood.
Charles City.....	Floyd.....	1,015	21	60.2	- 1.5	93	8	29	26	34	1.53	- 1.27	0.51	0	12	5	11	14	s.	U. S. Weather Bureau.
Clear Lake.....	Cerro Gordo.....	1,241	14	63.7	+ 1.5	95	5	33	26	31	1.41	- 1.55	0.71	0	3	23	1	6	s.	Oscar Stevens.
Clinton.....	Clinton.....	593	45	65.4	+ 2.1	98	4	31	29	36	2.89	- 0.42	1.22	0	8	11	10	9	sw.	A. E. Reid.
Columbus Junction.....	Louisa.....	595	11	66.0	+ 0.5	97	8†	32	26	34	1.78	- 1.37	0.65	0	6	20	3	7	n.	J. B. Johnston.
Davenport.....	Scott.....	580	41	66.4	+ 1.7	97	8	34	29	25	2.28	- 0.86	1.36	0	9	11	8	11	sw.	U. S. Weather Bureau.
Decorah.....	Winnishiek.....	875	19	62.2	+ 0.1	94	9	29	28	37	3.37	- 0.36	1.35	0	10	.....	.....	.....	.....	F. H. Baker.
Delaware.....	Delaware.....	1,083	21	62.2	+ 0.4	92	8†	92	26	33	5.35	+ 2.08	1.49	0	11	12	15	5	no.	William Ball.
Des Moines.....	Polk.....	861	34	63.2	- 1.8	95	9	33	29	30	4.20	+ 1.13	1.78	0	16	10	9	11	sw.	U. S. Weather Bureau.
Dubuque.....	Dubuque.....	639	39	63.8	- 0.2	94	9	33	29	29	4.42	+ 0.83	0.83	0	13	11	7	12	s.	Do.
Durham.....	Madison.....	10	61.0	- 1.1	91	8	27	26	33	5.31	+ 1.52	2.30	0	13	9	7	14	sw.	George Phillips.	
Elkader.....	Clayton.....	727	33	62.2	- 0.3	94	9	29	29	33	4.21	+ 0.37	1.10	0	11	19	3	8	se.	Chas. Reinecke.
Elma.....	Howard.....	2	59.4	.....	90	8†	28	26	35	2.45	.....	0.44	0	13	13	11	6	se.	H. A. Moore.	
Estherville.....	Emmet.....	1,298	17	58.6	- 2.1	93	5†	30	26	37	2.45	- 0.78	0.75	0	8	19	11	0	s.	A. O. Peterson.
Fairfield.....	Jefferson.....	28	65.2	+ 1.2	97	8	30	29	28	0.83	- 2.64	0.32	0	8	15	5	10	s.	R. M. McKenzie.	
Fayette.....	Fayette.....	1,003	22	60.4	- 1.9	91	9	29	29	33	5.01	+ 1.78	2.40	0	9	15	6	9	sw.	R. Z. Latimer.
Forest City.....	Winnebago.....	1,226	18	59.8	- 2.2	93	7	30	26	33	2.11	- 1.51	1.00	0	5	13	9	8	sw.	J. A. Peters.
Fort Dodge.....	Webster.....	1,126	12	61.2	- 1.4	96	8	31	26	36	4.03	- 0.54	0.60	0	11	.....	.....	.....	.....	J. F. Monk.
Fort Madison.....	Lee.....	516	63	.....	.....	.....	.....	.....	.....	.....	2.42	- 1.39	1.70	0	5	10	10	10	sw.	Miss L. A. McCready.
Gilman.....	Marshall.....	1,052	13	.....	.....	.....	.....	.....	.....	.....	7.21	+ 4.31	2.06	0	12	.....	.....	.....	.....	J. L. Wylie.
Grand Meadow.....	Clayton.....	1,180	21	59.2	- 2.7	88	9	30	26	29	3.95	+ 0.32	0.91	0	10	7	16	7	sw.	F. L. Williams.
Grinnell.....	Poweshiek.....	1,023	20	63.4	- 0.4	98	8	29	26	36	5.34	+ 2.99	1.29	0	11	14	4	12	n.	D. W. Brainard.
Grundy Center.....	Grundy.....	976	21	63.4	+ 0.3	95	9	31	26	38	5.64	+ 2.39	2.00	0	15	16	7	7	s.	J. B. Calderwood.
Guthrie Center.....	Guthrie.....	1,077	17	61.4	- 2.5	93	1	29	26	36	9.32	+ 6.23	4.10	0	17	12	7	11	sw.	D. G. Beardsley.
Hampton.....	Franklin.....	1,155	22	61.7	- 1.2	95	8	31	26	32	3.31	- 0.25	0.80	0	13	6	21	3	sw.	E. C. Grenelle.
Humboldt.....	Humboldt.....	1,095	24	59.6	- 2.9	95	8	28	26	37	.....	.....	0.89	0	.....	.....	.....	.....	.....	J. P. Peterson.
Independence.....	Buchanan.....	921	48	62.0	+ 0.3	93	8†	29	29	34	6.23	+ 2.28	1.00	0	18	14	7	9	nw.	R. E. Dudley.
Indianola.....	Warren.....	969	21	63.0	- 2.5	95	8†	32	26	29	6.38	+ 3.28	1.50	0	14	9	5	16	sw.	Prof. J. L. Titon.
Iowa City.....	Johnson.....	883	52	63.7	+ 0.1	98	8	29	26	40	2.67	- 1.08	0.74	0	15	13	6	11	sw.	Prof. A. G. Smith.
Iowa Falls.....	Hardin.....	1,170	19	59.4	- 2.2	90	8†	29	29	32	4.51	+ 1.54	0.99	0	15	12	6	12	sw.	J. B. Parmelee.
Jefferson.....	Greene.....	13	61.3	.....	92	8	30	26	38	5.78	+ 2.31	1.81	0	17	9	10	11	se.	Ora M. Hall.	
Keokuk.....	Lee.....	547	41	67.4	+ 1.0	98	8	34	26	28	1.73	- 2.24	1.00	0	5	14	10	6	s.	U. S. Weather Bureau.
Keosauqua.....	Van Buren.....	644	20	64.6	- 2.3	99	8	27	30	37	2.54	- 1.86	0.91	0	10	8	8	14	.....	J. H. Landes.
Knoxville.....	Marion.....	920	17	64.0	- 2.2	96	8†	32	26	31	4.94	+ 1.42	1.03	0	12	11	3	16	se.	Casey and Bellville.
Lacota.....	Warren.....	13	.....	.....	.....	.....	.....	.....	.....	.....	4.95	+ 1.12	1.15	0	13	4	17	9	.....	J. B. Alter.
Lansing.....	Allamakee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.06	.....	0.80	0	14	.....	.....	.....	.....	Chas. R. Serene.
Le Claire.....	Scott.....	576	12	.....	.....	.....	.....	.....	.....	.....	2.07	- 1.71	1.00	0	8	.....	.....	.....	.....	Miss M. T. Disney.
Marshalltown.....	Marshall.....	947	20	62.6	- 1.5	99	8	29	26	39	5.50	+ 2.55	1.45	T	19	10	10	10	sw.	Jacob Eige.
Mason City.....	Cerro Gordo.....	1,132	15	60.0	- 3.0	91	8	29	26	37	1.47	- 0.89	0.40	0	6	13	9	8	se.	J. S. Mills.
Monroe.....	Jasper.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.48	.....	1.04	0	10	17	6	7	s.	J. A. Dibel.
Mount Pleasant.....	Henry.....	729	31	64.8	- 0.2	95	9	31	26	30	4.84	- 2.20	0.70	0	7	16	8	6	sw.	J. W. Edwards.
Muscatine.....	Muscatine.....	52	.....	.....	.....	.....	.....	.....	.....	.....	1.55	- 2.17	0.54	0	11	.....	.....	.....	.....	William Moils.
New Hampton.....	Chickasaw.....	1,169	15	61.0	- 0.7	91	9	30	26	29	2.79	- 0.72	0.54	0	13	24	2	4	s.	A. F. Kemman.
Northwood.....	Worth.....	1,122	16	59.0	- 1.8	89	8	29	26	32	2.67	- 0.68	0.75	T	10	13	11	6	sw.	Chas. H. Dwell.
Olin.....	Jones.....	760	14	63.6	+ 0.5	95	5†	28	29	33	3.26	+ 0.03	0.80	0	9	11	12	7	sw.	Dr. F. W. Port.
Osage.....	Mitchell.....	1,184	25	60.9	+ 0.9	93	8	30	26	33	3.74	+ 0.18	1.24	0	9	15	10	5	s.	Lester Coonrad.
Oskaloosa.....	Mahaska.....	843	36	64.0	- 0.5	99	8	29	26	33	1.54	- 1.49	0.41	0	9	14	2	14	sw.	Joseph Boyd.
Ottumwa.....	Wapello.....	649	17	65.0	- 2.2	104	8	30	27	36	0.60	- 3.43	0.50	0	2	7	14	9	nw.	Chester Potter.
Pella.....	Marion.....	877	10	63.0	- 3.4	98	8	29	29	37	4.98	+ 2.48	1.18	0	14	18	1	11	nw.	J. H. Ver Steeg.
Perry.....	Dallas.....	975	11	61.8	- 2.6	92	1	29	29	35	6.75	+ 4.05	2.33	0	13	10	9	11	se.	S. J. Brumfield.
Pocahontas.....	Pocahontas.....	1,248	8	60.6	.....	93	1†	30	27	34	4.14	.....	1.00	0	13	15	10	5	s.	F. E. Irons.
Ridgeway.....	Winnishiek.....	1,215	14	62.4	- 0.8	95	9	29	26	34	5.27	+ 0.96	2.50	0	14	15	9	6	s.	Arthur Betts.
Rockwell City.....	Calhoun.....	16	62.3	- 1.5	95	1	33	28	28	5.93	+ 2.75	1.45	0	11	15	11	4	.....	C. M. Randall.	
Sac City.....	Sac.....	1,278	36	60.9	- 0.6	91	8	32	27	31	5.06	+ 1.78	1.89	0	12	10	8	12	se.	E. N. Baily.
Saint Charles.....	Madison.....	1,070	11	63.0	- 2.4	97	9	32	26	32	6.14	+ 2.50	1.90	0	15	10	11	9	nw.	R. D. Minard.
Sigourney.....	Keokuk.....	877	16	64.6	- 1.0	98	9	30	26	33	1.96	- 1.06	0.55	0	13	3	23	4	s.	J. T. Parker.
Stockport.....	Van Buren.....	745	10	65.1	.....	99	8	28	26	34	1.70	- 2.54	0.59	0	11	15	3	12	s.	C. L. Beswick.
Storm Lake.....	Buena Vista.....	1,440	23	60.2	- 2.5	90	8	30	27	30	4.56	+ 1.47	1.26	0	10	18	4	8	s	

TABLE 1.—*Climatological data for September, 1912. District No. 5—Continued.*

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.			
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<b>Indiana.</b>																					
Collegeville.....	Jasper.....	13	66.7	+ 1.6	97	9	31	27+	35	1.58	- 1.44	0.46	0	6	13	13	4	sw.	Otto Miller.		
Knox.....	Starke.....	716	66.0	- 0.4	96	1	33	30	27	3.78	.....	1.30	0	10	17	9	4	sw.	W. R. R. Tatman.		
Laporte.....	Laporte.....	810	67.0	+ 2.7	92	1+	34	27+	49	1.81	- 1.36	0.50	0	8	18	3	9	sw.	Wm. M. Walton, jr.		
Plymouth.....	Marshall.....	790	65.6	.....	89	5+	32	30	29	3.22	.....	0.69	0	9	17	7	6	sw.	J. W. Siders.		
South Bend.....	St. Joseph.....	726	66.4	+ 0.8	93	6+	37	30	27	4.32	+ 1.29	2.27	0	12	12	12	6	se.	Henry H. Swaim.		
<b>Illinois.</b>																					
Aledo.....	Mercer.....	738	66.0	+ 0.6	97	5+	32	26	30	1.77	- 2.39	0.79	0	9	4	16	10	nw.	William B. Frew.		
Alexander.....	Morgan.....	670	67.6	- 0.4	96	8	32	30	32	1.62	- 2.20	1.14	0	8	15	5	10	sw.	George H. Hall.		
Antioch.....	Lake.....	861	64.2	+ 0.8	97	5	34	29+	38	2.25	- 1.93	1.35	0	3	10	7	13	w.	J. C. James.		
Astoria.....	Fulton.....	650	65.0b	- 0.4	96b	6	32b	30	31+	2.96	- 1.46	1.49	0	6	16	6	8	nw.	Edward V. Bohl.		
Aurora.....	Kane.....	678	64.5	+ 0.8	92	5+	31	30	29	2.55	- 1.08	0.90	0	8	7	12	11	sw.	W. Holden.		
Beardstown.....	Cass.....	448	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Mrs. L. M. Rice.		
Bement.....	Piatt.....	700	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rev. C. S. Adams.		
Bloomington.....	McLean.....	840	68.4	+ 0.4	97	5	32	30	30	1.35	- 2.41	0.50	0	8	19	3	8	sw.	Prof. H. N. Pearce.		
Cairo.....	Alexander.....	359	72.7	+ 2.5	95	10	46	27	26	2.33	- 0.14	1.07	0	6	19	6	5	n.	U. S. Weather Bureau.		
Carbondale.....	Jackson.....	412	71.9	.....	103	10	37	27	46	5.62	.....	2.68	0	7	22	5	3	sw.	State Normal University.		
Carlinville.....	Macoupin.....	663	70.2	+ 0.7	101	6+	32	30	36	1.08	- 1.40	1.40	0	4	20	5	5	w.	Blackburn College.		
Carlyle.....	Clinton.....	470	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Hervey O. Jones.		
Chester.....	Randolph.....	380	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	F. A. Gollon.		
Clinton.....	Dewitt.....	727	2	68.4	.....	96	5+	33	30	31	1.96	.....	0.64	0	5	18	7	5	sw.	J. Frank Ziegler.	
Coatsburg.....	Adams.....	763	20	67.4	- 0.3	97	6	33	26	32	2.44	.....	2.17	1.02	0	6	13	6	11	sw.	Dr. J. R. Lambert.
Cobden.....	Union.....	656	29	73.0	+ 1.8	101	10	42	27+	38	4.83	+ 1.39	2.05	0	7	19	5	6	n.	John Buck.	
Dakota.....	Stephenson.....	929	7	63.7	.....	96	9	30	26	35	4.75	.....	1.40	0	10	6	17	7	n.	Elmer Smith.	
Decatur.....	Macoupin.....	685	21	69.0	+ 0.9	99	7	32	30	35	1.50	.....	0.64	0	4	20	6	4	sw.	Prof. J. H. Coonradt.	
Dixon.....	Lee.....	725	22	65.4	+ 0.7	94	5+	33+	29	33	3.57	+ 0.04	2.50	0	5	20	7	3	.....	H. U. Bardwell.	
Du Quoin.....	Perry.....	459	24	71.2	- 0.1	100	5+	37	30	39	2.87	- 0.01	1.04	0	5	23	5	2	sw.	G. H. Knetzger.	
Dwight.....	Livingston.....	600	19	67.4	+ 2.5	99	5	33	30	33	2.65	- 0.37	0.87	0	9	15	5	10	sw.	Edward O. Welch.	
East St. Louis.....	St. Clair.....	481	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. McK. Brown.		
Edwardsville.....	Madison.....	554	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Morgan.		
Elgin.....	Kane.....	716	5	65.4	.....	94	5+	35	29+	30	3.11	.....	1.20	0	9	9	14	7	nw.	Elgin Observatory.	
Ewing.....	Franklin.....	449	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Ewing College.		
Fairview.....	Fulton.....	733	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Abram Wilson.		
Galva.....	Henry.....	842	20	66.2	+ 0.6	99	6+	31	26	35	2.59	- 0.70	1.37	0	5	16	3	11	sw.	Prof. F. U. White.	
Grafton.....	Jersey.....	422	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. C. Goodrich.		
Greenville.....	Bond.....	635	34	71.8	+ 2.8	102	7+	36	30	35	1.58	- 2.04	1.00	0	6	22	2	6	sw.	H. W. Reidemann.	
Griggsville.....	Pike.....	650	27	68.0	- 0.1	97	7	36	26	28	4.29	+ 0.03	2.00	0	5	16	6	8	sw.	George F. Kneeland.	
Havana.....	Mason.....	475	20	68.5	- 0.7	100	6+	33	30	36	5.78	+ 1.49	2.81	0	4	18	3	9	nw.	L. L. Eutenener.	
Henry.....	Marshall.....	500	24	67.2	+ 0.7	98	6	34	30	32	3.01	- 0.37	1.43	0	7	18	4	8	sw.	Dr. F. A. Powell.	
Hillsboro.....	Montgomery.....	675	18	69.3	- 0.1	99	6+	35	30	34	1.51	- 2.09	0.72	0	5	22	4	4	s.	Ira L. Woodward.	
Joliet.....	Will.....	609	21	67.3	+ 2.6	102	5	30	30	39	2.34	- 1.55	1.06	0	5	16	5	9	sw.	F. M. Muhlig.	
Kishwaukee.....	Winnebago.....	730	24	64.0b	+ 1.0	96	8	32	29	35	3.86	+ 0.72	2.29	0	9	16	5	6	sw.	George Stevens.	
La Grange.....	Cook.....	657	20	67.0b	+ 2.8	94+	5+	36b	30	28+	3.68	- 2.11	1.35	0	6	21	7	2	sw.	Prof. F. E. Sanford.	
La Harpe.....	Hancock.....	698	33	66.0	- 0.2	99	8+	28	30	35	1.70	- 2.52	0.90	0	5	23	3	4	sw.	George E. Campbell.	
Lanark.....	Carroll.....	883	23	63.7	+ 1.0	96	8+	29	29+	34	3.62	+ 0.18	1.12	0	10	18	6	6	sw.	M. N. Wertz.	
La Salle.....	La Salle.....	536	7	66.4	+ 2.5	97	8	35	30	30	2.54	- 0.66	1.06	0	8	14	6	10	sw.	U. S. Weather Bureau.	
Lincoln.....	Logan.....	575	24	68.2	+ 0.8	97	4+	27	30	38	1.52	- 2.28	1.05	0	7	16	5	9	nw.	Prof. C. S. Ogilvie.	
Loami.....	Macomb.....	624	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. C. Oster.		
Macomb.....	McDonough.....	700	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	State Normal University.		
Manteno.....	Kankakee.....	711	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. F. Schmetzer.		
Martinton.....	Iroquois.....	633	25	67.0	+ 2.0	99	5+	32	30	35	1.93	- 1.65	0.83	0	7	16	9	5	sw.	Joseph H. Feltier.	
Mascoutah.....	St. Clair.....	425	22	71.0	- 0.8	102	7+	35	30	41	2.67	- 1.06	2.01	0	5	19	5	6	sw.	George Henrich.	
Minonk.....	Woodford.....	745	19	68.8	+ 2.4	99	4+	33	26+	35	2.85	- 1.12	1.15	0	8	15	7	8	s.	M. H. Paffle.	
Monmouth.....	Warren.....	784	20	66.6	+ 0.4	98	5+	32	26	31	2.70	- 2.14	1.82	0	6	17	7	11	w.	Dr. J. C. Hutchison.	
Morris.....	Grundy.....	518	1	67.1	.....	98	5+	34	26+	35	2.22	.....	0.94	0	9	16	9	5	sw.	E. G. Cryder.	
Morrison.....	Whiteside.....	685	18	64.8	+ 0.4	94	4+	31	29+	34	3.05	- 0.55	1.65	0	8	17	6	7	sw.	S. A. Maxwell.	
Morrisonville.....	Christian.....	638	13	68.8b	+ 0.7	99	6	30+	30	35+	1.18	- 2.11	0.72	0	5	18	6	6	sw.	J. D. Lewis.	
Mount Vernon.....	Jefferson.....	511	18	69.2	- 1.2	97	5	39	27+	37	3.60	- 0.11	1.05	0	7	20	4	6	n.	Theodore P. Stelle.	
Nashville.....	Washington.....	503	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. M. Potter.		
Oregon.....	Ogle.....	702	3	65.1	.....	96	4+	30	29	31	4.18	- 0.43	1.70	0	5	12	4	14	sw.	Samuel Ray.	
Ottawa.....	La Salle.....	500	26	66.2	+ 0.8	98	3	35	30	38	2.86	- 0.69	1.15	0	7	10	10	10	nw.	Miss Maude M. Harris.	
Pana.....	Christian.....	692	26	69.7b	+ 1.8	99d	6	35+	30	30	0.80	- 2.83	0.55	0	3	19	1	10	.....	Dr. G. N. Gilbert.	
Pawpaw.....	Lee.....	930	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. C. McBride.		
Peoria.....	Peoria.....	609	56	67.0	+ 2.7	97	6	32	30	31	3.54	+ 0.42	1.47	0	9	13	9	8	s.	U. S. Weather Bureau.	
Pontiac.....	Livingston.....	546	10	68.8	+ 1.3	98	4+	35	26+	33	3.05	- 1.20	1.26	0	11	9	12	9	sw.	George Butterworth.	
Quincy.....	Adams.....	481	6	69.4	.....	100	8	37	26+	40	2.09	.....	1.47	0	3	.....	.....	.....	Fred J. Brinkoetter.		
Riley.....	McHenry.....	956	53	63.9	+ 2.2	92	5+	33	26+	27	3.60	- 0.12	2.13	0	8	12	7	11	sw.	John West James.	
Roberts.....	Ford.....	774	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	R. E. Bradbury.		
Rockford.....	Winnebago.....	763	20	63.8	+ 0.4	93	5+	33	29	26	1.20	.....	0.37	0	7	19	7	4	sw.	Hosmer C. Porter.	
Rushville.....	Schuyler.....	670	21	68.4	+ 1.6	97	6	35	26	28	3.09	- 0.30	2.38	0	9	11	7	12	.....	H. F. Dyson.	
St. Charles.....	Kane.....	700	17	65.2a	+ 1.0	95	5+	32b	30	33	3.66	- 1.00	0.85	0	6	15	8	7	s.	Dr. William H. Bishop.	
St. Peter.....	Fayette.....	500	10	70.2	+ 0.6	97	5+	36+	30	30+	2.58	- 0.91	1.40	0	7	14	13	3	nw.	M. L. Lansford.	
Sparta.....	Randolph.....	538	26	70.4	+ 0.5	99	6+	36	30	37	3.22	- 0.21	1.57	0	5	22	5	3	nw.	James A. Caldwell.	
Springfield.....	Sangamon.....	644	32	68.2	+ 1.8	96	6	36	26	27	1.42	- 1.95	0.90	0	7	15	7	8	s.	U. S. Weather Bureau.	
Streator.....	La Salle.....	626	19	67.8	+ 1.3	101	5	32	30	36	3.18	- 0.40	1.45	0	10	20	4	6	sw.	Miss Lora Sweetser.	

TABLE 2.—Daily precipitation for September, 1912. District No. 5, Upper Mississippi Valley.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>North Dakota.</b>																																	
Amenia.	Red.	.31				T.				.94				1.57	T.	.32	.35	.39	T.		.45	.36	.51	.27	.74	.33						6.54	
Bottineau.	Mouse.	T.		.25	.53	T.								.14	.42	.02	.36	.02			T.	.62	.06	T.					.18			2.60	
Bowbells.	do.			.10	.12	.15								.10	1.10	.20	.20	.05				.70	.40									3.12	
Cando.	Sheyenne													*	.71	.03	.10				*	.94	T.					T.	T.			1.90	
Crosby.	Mouse.				.02	.10								.05	.08	.12	.30	.03		T.	.47			.01	T.			.01				1.11	
Devils Lake.	Sheyenne				.02			.02						T.	*	*	1.47			T.	*	1.57							.09			3.20	
Donnybrook.	Mouse.				.07									.38	.38	.38	.01	.38			.70	.18						.15				3.18	
Dunseith.	do.	.01		.53	.08																												
Edmore.	Sheyenne													.16	T.	.18	.85	T.				.90	.15	.07					.04			2.17	
Fessenden.	James.	T.				T.							.10	.16	.70	.20	.15				.17	.12		.50	.05							1.99	
Forman.	Sheyenne									T.					.33	.06	.27				.38	.30	.21	.23	.15			.11				2.11	
Grafton.	Red.	.01			.06										.24	.19	.26	.15			.55	.57							.09			2.23	
Granville.	Mouse.				.18									.54	.24	.19	.26	.15			.57	.08						.11				7.67	
Hannah.	Pembina.			1.47	2.00									.17	*	1.13	*	.37			.58	.02						.12	.03			3.87	
Hansboro.	Red.			.84	.61					.44				.04	1.51		.36	.11	.14	T.	.67	.41	.03	1.11	1.44	.06						6.53	
Hillsboro.	do.				.21																												
Lakota.	Sheyenne	T.			.06					T.				.48	.56	.03	.43			.12	.28	.05		.50					T.	.04	T.	1.43	
Langdon.	Pembina.	.07			1.82	T.				T.				.48	.02	.12	.41				.20	.09	.23	.13	1.05	.05			0.3			3.09	
Larimore.	Red.		.01		.04	.23								.48	.02	.12	.41				.13	.14	.12	.08	.56	.22						2.95	
Lisbon.	Sheyenne	.41			.05					T.					.05	.10			.15														2.94
McKinney.	Mouse.			.50	T.									.20	.80		.20			T.	*	1.05							.19			2.40	
McLeod.	Sheyenne													.41	.15	.18					.36	.30		.08	.77	.15						1.65	
Manfred.	do.									T.				.08	.03	T.	.61	.17		T.	.36	.40							T.			6.33	
Mayville.	Red.	.20			.30					1.40				.20	.59	T.	.31	.06			.20	.18		.05	.59	.11							2.20
Milnor.	do.									T.				.20	.59	T.	.31	.06			.20	.18		.05	.59	.11							2.13
Minot.	Mouse.			.07	.10		.05								.25	.08	.45	.01			.20	.18		.05	.59	.11							3.49
Minto.	Red.													T.	1.04	.05	.20	.20		T.	.56	.28			.11	.95			T.	.10			3.45
Oriska.	Sheyenne	.01				T.				.24				.10	.94	.32	.02	.19			.32	.38		.44	.44	.02				.03			1.66
Park River.	Red.	T.			.03					T.				.50	.07	.05	.45			.02	.30	.10	.01		.12				.01				1.55
Pembina.	do.	.15		.04	.28	T.				T.				.02	.10	T.	T.			.42	.40	.46	.08						.02				3.01
Power.	Sheyenne									T.				.53			.26					.45	.09		1.26								
Pratt.	Mouse.																				.73	.33											2.51
Towner.	do.	T.		.09										.32	.32	.59					.04	1.20	T.		.44	1.64				.13			5.97
University.	do.	.01			1.49					.16				.01	.57	.05	.17	.17			.02	.60			.15		.50						1.75
Wahpeton.	do.										.03			.22			.07	.18															
Walhalla.	Pembina													.30	.39		.25				.30	.62							.06				2.32
Westhope.	Mouse.			.31		.09								.03	T.	.84	T.	.33				.70	.18						.40				2.99
Willow City.	do.			.50	.01	T.																											
<b>Minnesota.</b>																																	
Albert Lea.	Mississippi						T.							.70				.50					T.		.40	.05							1.65
Alexandria   .	do.																																
Angus.	Red.				.81					.15				T.	1.14	.14	.24				1.20	.28		.59	1.58	.05							6.18
Bagley.	do.									.05				.75		.15					1.10	.20		.40	.80	1.30			.22				4.97
Baudette.	Rainy																																
Beardsley.	Minnesota.	T.								.21				.10		.13	.05				.40	.02			.67	.00			.60				2.87
Beaulieu   .	Red.																																
Bemidji   .	Mississippi									.04				.44		.22	.05			.79	.14		.17	.24	.02	.31	.43	.03		.12			3.00
Bird Island.	Minnesota.	.04												.62		.04	.31	.09			.31	.09		T.	.78								2.01
Brainerd.	Mississippi				.04									.27		.39	.11	T.		.11		.07			.62								1.61
Caledonia   .	do.	.34	1.30		.50	.09				.01	T.			T.	.14	.05	.12	.05		.17		.04			.20			T.					3.00
Campbell   .	Red.									.02				.27		.08	.34			.73		.04		.25		.06	1.37	.09		.20			3.51
Cass Lake   .	Mississippi			T.						.12				.54	T.	.23	.12			.66			.11										2.36
Collegeville.	do.	.02			.02					.61				.04	T.	.34	.12	.08			.38	.05				.59				.02			2.27
Crookston   .	Red.	.20	T.		T.	.09				.75				.96	T.	.03	.27			1.05	.08	.28	.18	1.90	.60								6.39
Detroit   .	do.	.10								.05				.95		.20	.22			1.00	T.	.40	.15	T.	1.50	.35	T.						4.92
Ely.	Rainy	.49		.44	*	3.72				T.	.14		T.	.19		T.	.36	T.			.03	.14	T.		.54	.21			.09				6.35
Fairmont (near).	Minnesota.						.17			.05			.45		.25				.32		.01	.01			.62	.24							2.34
Faribault.	Mississippi																																
Farmington.	do.	T.								.05	.14			.32			.18	.06			.08	T.	.02			1.05							1.90
Fergus Falls.	Red.				T.									.68		.04	.11	.15			.88	.15	.03		.65	.99			.14				3.82
Fort Ripley   .	Mississippi	.20			.21					.66				.26		.36	.19			.18		.08			.47	T.							1.95
Forston.	Red.				.11									.85		.03	.11	.07			1.20	.13	.14	.47	.65	.76			.01				5.19
Glencoe.	Mississippi									.15				.13	.26		.31	.03	.32	T.	.05	T.				1.00							1.55
Grand Meadow.	do.	T.	.07	T.		.03				.34																							

TABLE 2.—Daily precipitation for September, 1912. District No. 5—Continued.

Stations.	Watershed.	Day of month.																													Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>Minnesota—Contd.</b>																																
St. Charles	Mississippi	.20			.14					T.	.25			.80	.11		.70	T.	1.65		.03					.45						4.23
St. Cloud	do.	.07												.06		.03	.22	.20	.02		.46	.06	.02			.64						1.78
St. Paul	do.	.01								.10	T.			.08			.01	.16	.06	.10		.04	.04		.08	.59						1.27
St. Peter	Minnesota																	.48								.47						0.95
Sandy Lake Dam	Mississippi				.04					.12				.36			.14				.10	.05	.09			.81	.14					1.85
State Sanatorium	do.				.45					.02				.03	.04	.45	.05				.60	.23		.11		.60	.12		T.	.06		2.09
Stillwater	St. Croix	.40								.64				.03			.11		.20		.05					.72	.05					2.35
Taylor's Falls	do.	.50								.90				.09			.07	.50			.18			.12		.92						2.44
Thief River Falls	Red.				.15					.05				1.33	.22	.12	.20				1.08	*	*	2.00		.40						6.40
Tracy	Minnesota	.05				.20				.10				.97	.08	.06	.20				1.43	.45	.05	.60	1.38		.32					1.80
Warren	Red.									.10				.20	.45	.08	.06				.86	.08	.05	.37	1.50		.50					5.38
Warroad	Rainy							.17	.30					2.00	.30	T.	.06				T.	T.	.01		.80	T.	T.					6.42
Winnebago	Minnesota				.01	.05			.01	.39	T.			1.05			.32	T.	.95		T.	T.	.01		.80	T.	T.					2.79
Winnibigoshish	Mississippi	.02												.105			.32	T.			.72	.36		.12	.02	.85	.14		.01	.04		3.66
Winona	do.	.70			.21					.30				.73			.99	T.	.41		.04				.23							3.61
Worthington	Des Moines	.01	.03			.70				.05				.23			.24	.20	.04		.02		.05		1.17							2.51
Zumbrota	Mississippi									.73				.23			.16	.09	.20		.14		T.			.25						1.80
<b>South Dakota.</b>																																
Milbank	Minnesota	.10								T.							.09	.06			.16		.01		.26	.79				.40		1.87
Sisseton	do.		.01							.02				.02			.20				.05				.35	.65				.02		1.32
<b>Wisconsin.</b>																																
Antigo	Wisconsin				.65				.26		.04			T.	.09		.14	.34	T.		.14	.24	T.			.09	T.					1.99
Barron	Chippewa	.48			T.			T.		.56				.68			1.09		.11	T.	T.	T.	.11			.36						3.39
Beloit	Rock	.19	T.													2.25	.60	.22	.20	.39	.06	.78			.07				.61			5.37
Big St. Germain	Wisconsin	.26			.35				.79		.04			.39			.24	.04			.65		.02			.13	T.	T.		T.		2.91
Dam																																
Brodhead	Rock	.30		.10												1.12	.63	.30	1.00	.68	.17	.66				.07			.77			5.73
Burnett	do.	.10	.25		1.43					.06						.45	.18	.49	.45	.47	.16	.49				.07			.24			4.84
Cornell	Chippewa				.67					.09				.48			.68				.08	.07				.19						2.26
Cottage Grove	Rock	.19	.23		.21					.01						1.01	.28	.41	2.61	.08	.09	.73			.03	.03		.35				6.23
Darlington	do.		.70		.40											.10	.02		.50	.90	.80	.80			.10			.60				4.92
Deerskin Dam	Wisconsin	.59	T.		T.				1.13		T.			T.	.23		T.	.13			T.	.78	T.			.60	T.					3.46
Delavan	Rock	.14	T.		T.											2.71	.19		.67		.02	.47			.07		.02	.56				4.85
Dodgeville	do.			.15												.45	.22	T.	1.20	.65	1.20	.10			T.			.30				4.27
Downing	Chippewa	T.			.22					.45		.60				.30					.15	T.	T.			.20						1.92
Eau Claire	do.				.93			T.		T.	.03			.81	.02		.77		.13		.07				.32				T.			3.08
Glen Flora	Chippewa	1.20			.23				.10	.21				.36	T.		.84	.03			.07		.05		.18	T.						3.27
Grand Rapids	Wisconsin		.15		.31	.93											.69				.13	.28			.22	.04						2.75
Grantsburg	St. Croix					.10	T.									.25	.15	1.80	.03				.12		1.05	T.						3.50
Hancock	Wisconsin	.20	.10		3.11	T.										.08	.12	.38		.28	.55	.05			.42		.02					5.31
Hatfield	Black				2.13					.43				.25			.41		.03		.23				.27							4.02
Hayward	St. Croix				.05				.04					.90			.50				*	.21			.55			.10				2.35
Hillsboro	Wisconsin	.25	.73		.92					.12				T.		T.	.33		.69		.42				.28		T.	T.				3.74
Koepnick	do.	2.50			.70				.10					.20		.20	.20	.20	.40				.10		.20	T.						4.80
Lac du Flambeau	Chippewa																				.05	T.			.18	.01		T.				1.61
La Crosse	Mississippi	.11	.01		.58				.03	.13				.11	T.	T.	.20		.20		.05	T.				.02		.08	.43	.03		4.79
Lake Mills	Rock	.12	.13		.06											1.05	.40	.23	.85	.41	.09	.88			.67			.40				4.18
Lancaster	Mississippi	.67	.30		.16						T.					.23	.38		.85		.45	.07										2.99
Long Lake	Wisconsin	.25			.10	.01			1.73					.06	.09		.12	.05			.18	.27			.12	.01						5.62
Madison	Rock	.13	.07	.01	.43		T.			.10				T.	.05	.48	.57	.02	2.54	.17	.52	.10		.08				.02	.33			3.67
Mather	Wisconsin	.26	.47		1.51	.15				.20	.03			T.	.02	T.		.56	.03	.04	.10	.25			.25							5.52
Mauston	do.	.25	.30		.35					.20							.30	1.10	.15	.12	.30				.45							3.67
Meadow Valley	do.	.23			2.20					.04							.50				.42				.28							4.75
Medford	Black	2.80			.30									.30			.80				.30				.25							3.98
Merrill	Wisconsin	1.90			.77				.18					.23	.13		.25				.10	.25			.17							2.42
Minocqua	do.	.34			.45				.03	.05				.33	.01		.30	.05			.30		.04		.40	.05	.02		.05			1.88
Mondovi	Mississippi				.34			.06		.02				.68	.02		.08		.08		.15	.01	.05		.39	T.						5.20
Mount Horeb	Rock	.27	.20	T.	.63				.02					T.	.26	.20	.20	1.60	.80	.45	.21			.16	T.			.40				4.30
Muscoda	Wisconsin	.14	.44		.28	.05					.13			.04	.10		.49		1.70		.12		.50		.16			.09	.18			3.13
Neillsville	Black	.25			1.85				.16							.75					.12											4.13
New Richmond	St. Croix	2.32							.10	.22				.24	T.		.18	.08	.12			.04	.11		.72							1.92
Oscoda	do.													.15			.12	.10	.10		.45				.10	.90						3.83
Park Falls	Chippewa	.37			.95				.49		.19			.58	.01																	

TABLE 2.—Daily precipitation for September, 1912. District No. 5—Continued.

Stations.	Watershed.	Day of month.																												Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>Iowa—Continued.</i>																																
Boone	Des Moines	.27	1.00		T.		.20	.09			1.72	.44		.51	.20	.44	.02		.16		.12					.20			.55	.02		5.94
Britt	Iowa	.02	.35	T.			.08				1.13	.01		.69	.02	.07	.04	.55	.02						.39	.03						3.82
Buckingham	Cedar	.32	.64	.15										.37		1.13	.08		.52		.61				T.	.19			.67			4.68
Burlington	Mississippi			.10			T.	T.							T.	1.35	.05					.80							.08	.18		2.56
Carroll	Raccoon	.38	.48		.28		.15	.29		.38	1.78	.35		.36		.30	.04		.02			T.				.32			.52			5.65
Cedar Rapids	Cedar	.65	.10	.21	T.						.60			T.	.55	.05	.05	.25	.10	T.	.67				T.			.40			3.63	
Charles City	do.	.05	.31		.06			.03			.03			.51	.03	.02	.05	.05	.18						.21			.30				1.53
Clear Lake	do.										.71								.40													1.41
Clinton	Mississippi	T.													1.22	.08		.05	.24	.30	.74					.06			.18			2.89
Columbus Junction	Iowa	.05								.20				T.	T.	.65	T.		T.		.58	.08			T.		T.	.22				1.78
Davenport	Mississippi	.03	T.		T.					.01				T.	1.25	.11	T.		.11		.58	.01				.06		T.	.12			2.28
Decorah	do.	.15	.50	T.	.56		T.							.30	.12	.11	T.	.16	1.35	T.	.10				.22		T.					3.37
Delaware	do.	1.03	.35		T.					.05						.86	.10		1.49		.55	.09			T.	.20			.50			5.22
Des Moines	Des Moines	.57	1.53	.10	.11		.02			T.	.08		T.	.18	.58	.03	.01	.03	T.		.54				.05		.05	.15	.17			4.20
Dubuque	Mississippi	.83	.11	.21			.02				.08			T.	.26	.48	.21		.09		.78				.08		.02	.03	.70			4.42
Earham	Raccoon	.81	2.30	T.			T.			.20				.10	.34	.13		.21	.03		.69				.10		.08	.08	.24			5.31
Elkader	Mississippi	.85	.35		.15		1.00				.05			.05		.53		.18	1.10		.28				.37			.30				4.21
Elma	Wapsipicon	.38	.35	.08	.25		T.	.02			.05			.44		.08	.35	.03		.02				.15	.25							2.45
Estherville	Des Moines				.25		.20				.75	.10		.05	T.		.20	.10	.45	T.	T.				.60			.01	.13			2.45
Fairfield	Skunk	.03		.02			T.							.05	.32	.23					T.				T.	.04						0.83
Fayette	Mississippi	.59	T.	T.	.48		T.								.50	.29		.24		.14				.18	.15			.28				5.01
Forest City	Cedar						.10		1.00	T.			T.	.10		.56								.35								2.11
Fort Dodge	Des Moines	.45	.60				.60			.50	.32			.15	.35	.30	T.		.30	T.					.35	.40			.06			4.03
Fort Madison	Mississippi	T.	.07				T.						.05	1.70							.42					.40			.18			2.42
Gilman	Iowa	.76	1.15	.19	.44									.76		.20	.08	.03			.52			.03	.36	T.	T.	.83				7.21
Grand Meadow	Mississippi	.35	.70	T.	.70		T.							.12		.16	.30		.91		.13				.36			.22				3.95
Grinnell	Iowa	.83	1.00	.07			T.							.60	T.	1.29	.07		.07		.61				.10	.10	T.	T.	.60			5.34
Grundy Center	Cedar	.39	2.00	.06	.50		.02			.65				.28	.05	.30	.12				.08				.10	.28		.53				5.64
Guthrie Center	Raccoon	.14	4.10	.03		.93			.08	1.60				.10	.08	.55	.02	.06	T.		.38				.20	.02	.03	.11	.89	T.		9.32
Hampton	Cedar	.53		.43		.20			.18	.24				.80	.10		.18	.30		.03				.25				.05	.02			3.31
Humboldt	Des Moines					.28		.03	.89					.30		.20	.05	.18	.08		.04				.30							6.23
Independence	Wapsipicon	.60	.85	.01	.29	.26			.07					.12	.02	1.00	.33		.90	.07	.47	.20		.02	.42			.57	.03			
Indianola	Des Moines	1.41	1.50	.06					.13					.04	.35	.91	.02	.15	.06	.57	.57			T.	T.		.05	.20			6.38	
Iowa City	Iowa	.16	.06	.07					.05					.04	.05	.74	.08	.19	.11	.13		.58			.03			.10	.28			2.67
Iowa Falls	do.	.78	.99		.34		.20	.03			.20	.34		.33	.12	.07	.11		.48	.10	T.			.24			.18	T.				4.51
Jefferson	Raccoon	.30	.02	.70	.01	.68			.01	1.81				.71	.17	.20		.08	.02		.11			.24	.03		.07	.62	T.			5.78
Keokuk	Mississippi	T.	T.	T.	.01	.01								.09	1.00				T.		.53							.14				1.73
Keosauqua	Des Moines		.02			.50	.51							.11	.91		T.	.01			.25				.06			.10	.07			2.54
Knoxville	do.	.43	.92	.13			T.			T.				.76	.25	.70	.05		.15		1.00			.07	.12	T.	T.	.33				4.94
Lacota	do.	.46	1.15		.28				.01					.62	.22	.64			.06		1.10			.07	.03	T.	T.	.08	.22			4.95
Lansing	do.	.20	.23		.80	.03				.06					.04	.17	.06	.17	.67	.13		.14			.29			.07	T.			3.06
Le Claire	Mississippi		T.											T.	1.00	T.	.02	.01	.06		.76	.01		.08			T.	.13			2.07	
Marshalltown	Iowa	.60	.85	T.	.25	T.	.02	.01	T.			.15		.26	.40	1.45	.06	.01	.07	.04	.15	.21	T.			.17		.01	.70	.09		5.50
Mason City	Cedar		.05				.10				.27			.32				.40						.33								1.47
Monroe	Skunk	.74	.98	T.	.17		T.							.55	1.04			T.	.14		.54			.20	.30			.18				4.84
Mount Pleasant	do.	.08	T.	T.			.09							T.	T.	.70	.01		T.		.31	.11			T.		T.	.18				1.48
Muscataine	Mississippi	.02	.02											T.	.02	.40	.06	.18		.07		.54			.08			.02	.14			1.55
New Hampton	Wapsipicon	.54	.33	T.	.25		T.			.04				.34	.07	.10	.18	.04	.51		.10			.21	.08							2.79
Northwood	Cedar		.25		T.	.12	.17			.75				.26	.22		.06	.52	.06		T.				.26	T.						2.67
Olin	Wapsipicon	.15	.37		.0	T.									.12	T.	.56		.05	.20				.35				.80				3.26
Osage	Cedar	T.	T.		1.17	.10	.15		.03	T.	.25			1.24	.05		.28	T.	.20					T.	.30							3.74
Oskaloosa	Des Moines	.24	.16	.02										.35	.06						.40				.07			T.	.21			1.54
Ottumwa	do.	.56	T.	T.											.50						.10				T.							0.60
Pella	do.	.56	.98	.05			T.		T.	T.	.16			.81	.05	.61	.06	T.	.03		1.18				.06	.15	.02	T.	.26			4.98
Perry	Raccoon	.47	2.33	.03			.27			1.62				.39		.52		.11	.02		.11				.06	.02	T.		.80			6.75
Pocahontas	Des Moines	.03	T.	.31		.38			.05	1.60				.14		.18	.10	.25	.07	.03				.65	.35							4.14
Ridgeway	Mississippi	.15	.75	.06	.48			.01		.03	.03			.38		.07	.38	.05	2.50		.74			.24								5.27
Rockwell City	Raccoon		1.45			.85		.35	1.25					.40	.35	.28	.10	.10		T.				.45	.35							5.93
Sac City	do.	.06	.98			.11		.15	1.89					.42	.18		.24	.04						.45	.36			.18				5.06
St. Charles	Des Moines	1.90	1.83	.08		.02		.15						.25	.32	.24	.24	T.		.75				.06	.01	.01	.04	.24				6.14
Sigourney	Skunk	.12	.10	.05			T.	.05						.12	.08	.27	.02		.15		.55	.02		.08				.25				1.96
Stockport	do.	.03	.08	T.																												

TABLE 2.—Daily precipitation for September, 1912. District No. 5—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Illinois—Continued.																																	
Beardstown	Illinois																																
Bement	Mississippi														.11	.50					.06												
Bloomington	Illinois		.40												.07			.14	.01		.79	.28					.05		T.	.06	.03		
Cairo	Mississippi														.10	.12	.78				.08						.17						
Carbondale	do.														.36	.22		.05			.98	.55					2.68						
Carlinsville	Illinois														.12	.12		.38	T.		1.40												
Carlyle	Mississippi														T.			1.22	.20		.20	.15					.30	.10					
Chester	do.			.14											.58			.36	1.08		1.02	.16						.72	.12			T.	
Clinton	Illinois		T.	.58											.15	.16		.64			.43							T.		T.			
Coatsburg	Mississippi							.55							.34			.16		1.02	.30								.07				
Cobden	do.														T.	.14		.84	.19		.76	.79				2.05	.06						
Dakota	do.	.22	T.												.140	.35		.29	.85	.19	.57					.03			.70		T.		
Decatur	Illinois		T.	T.											.05	.18		.63			.64									T.	T.		
Dixon	Mississippi	T.	T.												2.50	.03				.24	.70									T.	T.		
Du Quoin	do.														.11	.35		1.04					.67										
Dwight	Illinois												T.		.10	.87		.08	T.	.03	T.	.86											
East St. Louis	Mississippi		.60												.15		.85	.36			1.12	.02					.03			.07	.01		
Edwardsville	do.														.19		.50			T.	1.17												
Elgin	Illinois						.30								.02	1.20		.13	.02	.16	1.01						.04		.23				
Ewing	Mississippi												T.		T.	.219		T.		.38	1.40								.21	T.			
Falview	Illinois			T.	T.										T.	.137		.02		.14	.91	.01					.04		T.	.21	T.		
Falview	do.														.06	.26		.86	.12		1.80						.06			.04	.10		
Grafton	Mississippi														.07	.04		1.10	.03		.30												
Greenville	do.														.40	2.00		T.			.44	.12											
Griggsville	Illinois				.33										T.	.10	2.81		T.		.32	2.55											
Havana	do.														T.	.143		.06	.12		.18	.94											
Henry	Mississippi		T.												.12		.15	.34	T.	.72		T.						.10		.18			
Hillsboro	Illinois														.06	1.06		.20	T.	.84													
Joliet	Mississippi														.229		.20	T.		.52	.02	.51					.03		T.	.18			
Kishwaukee	Illinois	.01	.07		T.										.135		.24	T.	.15		.80												
La Grange	do.		.74												.12		.30		.05	.20	.38	.22	.68										
La Harpe	Mississippi	.12													T.	.112	.04	.05	.20	.38	.22	.68					.05		.50				
Lamar	Illinois														T.	.06	1.00	.04	T.	.15	.49	.54				.08							
La Salle	do.				.04										T.	.10	.12		.15	.06		.99	T.										
Lincoln	do.														.05	.20	.23		.38		.05	1.00						.03					
Loomis	do.														T.	.04	.94	T.			.89	.38											
Macomb	do.			.73											T.	.02	.35		.07	.06		.06	.48							.14			
Manteno	do.														T.	.07	.37		.04	.50						.02				.04			
Martinton	do.				.83										.04	.43		2.01							.08			.03		T.	T.		
Mascoutah	Mississippi		.02												T.	1.15	T.	.06	.01		.10	1.12						.17					
Minonk	Illinois		.27												.02					.02	.40	.26								.10	.04		
Monmouth	Mississippi															.94		.10	.02	.06	.02	.80											
Morris	Illinois														T.	.165	.07		.04	.27	.22	.54						.01					
Morrison	Mississippi	T.			T.										T.	.10	.04		.28	.04		.72									.15		
Morrisonville	Illinois				T.										T.	.10	.11		.87	1.05		.25	.51										
Mount Vernon	Mississippi														T.	.02		1.70	.18		.35	.04	.58										
Nashville	do.				T.										T.	.300		T.	.12	.18	.35	.05	.58										
Oregon	do.																	.12	.18		.05			1.15									
Ottawa	Illinois														.10		.95		.55	.15								.07					
Pana	Mississippi														T.	.21	.26	.05	T.		1.08	.36											
Pawpaw	Illinois	.03						.01							T.	.07	1.26	.01	.08	.01	.01	T.	.88				.01						
Peoria	do.		.43												T.	.147																	
Pontiac	do.		.70												T.	.213		.15	T.	.31	T.	.48											
Quincy	Mississippi	.06	.14												T.	.10	.37		.35	.05	.03	T.	.25										
Riley	do.														T.	.200		.24	.02	.37		.53											
Roberts	Illinois		.05	T.											T.	.235		T.	.32	.08	.14	T.	.80										
Rockford	Mississippi		.03		.08										T.	.85		.32	.08		.43	1.15											
Rushville	Illinois							.37							T.	.10		1.40	.10		.30	.30											
St. Charles	do.		.78												T.	.10		1.57	.21		T.	.77											
St. Peter	Mississippi				.25										T.	.145		.12	.04	.07		.14	.77										
Sparta	do.				.25										T.	.145		.12	.04	.07		.14	.77										
Springfield	Illinois				.03										T.	.145		.12	.04	.07		.14	.77										
Streator	do.														T.	.145		.12	.04	.07		.14	.77										
Sullivan	Mississippi														T.	.145		.12	.04	.07		.14	.77										
Sycamore	do.	T.													T.	.145		.12	.04	.07		.14	.77										
Tiskilwa	Illinois														T.	.145		.12	.04	.07		.14	.77										
Walnut	Mississippi														T.	.145		.12	.04	.07		.14	.77										
Warsaw	do.							.08							T.	.145		.12	.04	.07		.14	.77										
Waterloo	Mississippi														T.	.145		.12	.04	.07		.14	.77										
White Hall	Illinois														T.	.145		.12	.04	.07		.14	.77										
Windsor	Mississippi														T.	.145		.12	.04	.07		.14	.77										
Winnebago	do.	T.													T.	.145		.12	.04	.07		.14	.77										
Yorkville	Illinois		.30												T.	.145		.12	.04	.07		.14	.77										

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE NO. 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.										Minnesota.																	
	Bottineau. §§		Devils Lake.		Lisbon. §§		Minot. §§		Pembina.		Collegeville.		Crookston. §§		Grand Meadow.		Montevideo. §§		Moorhead.		New Ulm. §§		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	69	50	76	52	80	52	73	52	71	41	85	57	71	56	82	66	92	53	82	56	93	60	81	54	88	62	80	54
2....	76	36	75	45	81	42	71	48	81	37	82	55	75	47	82	65	85	50	78	46	78	59	75	50	78	62	79	52
3....	76	44	84	59	90	53	80	50	82	54	81	58	86	50	81	54	85	57	88	60	88	58	80	50	80	57	85	52
4....	81	58	82	63	91	63	75	53	81	61	88	66	79	65	89	67	92	67	90	70	94	61	87	62	91	69	82	64
5....	82	63	87	54	94	62	85	48	88	62	91	73	92	69	91	70	95	73	93	60	96	74	89	62	93	76	80	66
6....	71	44	75	51	87	40	73	45	78	42	89	56	80	49	82	60	83	53	82	44	82	61	85	64	80	64	87	55
7....	73	40	73	45	84	40	75	43	82	38	82	59	80	48	90	52	87	59	85	49	91	57	81	46	84	58	82	54
8....	75	46	75	52	84	44	75	44	76	55	91	70	89	50	93	67	98	63	94	65	97	61	90	65	95	72	90	56
9....	68	45	72	49	80	60	69	47	76	51	90	66	75	61	89	68	82	65	77	56	93	73	87	68	91	72	84	60
10....	71	38	66	43	68	47	70	39	71	48	74	57	65	50	78	67	72	56	63	48	72	63	73	55	75	60	72	58
11....	75	41	74	46	80	35	77	43	80	41	70	49	76	43	75	61	75	45	76	41	72	50	72	50	70	52	75	58
12....	62	40	65	49	75	40	75	41	78	46	76	53	76	45	78	57	81	46	76	43	78	49	77	54	76	53	72	58
13....	54	47	56	46	67	40	55	49	61	48	73	59	66	48	68	55	83	54	68	45	72	52	70	55	71	56	71	52
14....	48	35	46	39	56	37	49	38	48	38	65	43	51	45	69	45	68	40	51	43	68	43	62	43	66	47	60	45
15....	47	37	47	37	54	40	46	38	42	33	66	43	56	44	75	52	56	45	52	39	60	46	61	34	70	52	62	44
16....	51	38	48	34	56	30	47	38	59	36	62	43	56	36	64	48	62	37	58	32	60	44	59	48	60	48	55	45
17....	60	31	59	35	53	33	60	28	62	34	61	46	58	45	63	39	57	38	56	45	57	47	58	37	60	46	62	42
18....	74	33	71	40	73	32	78	37	80	36	63	46	69	40	59	45	67	40	69	30	60	47	62	42	64	49	68	41
19....	58	37	56	43	65	35	61	47	62	40	71	44	61	40	72	42	78	41	63	42	75	42	64	38	72	45	71	42
20....	49	42	48	40	55	39	48	38	44	41	65	46	52	45	60	50	60	45	53	43	61	44	60	42	58	47	62	41
21....	49	41	48	39	52	39	47	41	49	40	52	37	46	44	60	36	57	39	47	40	60	39	50	33	58	42	52	30
22....	56	37	58	39	62	40	60	40	51	38	54	40	55	40	63	42	62	33	58	40	61	42	50	40	55	44	50	37
23....	50	35	50	39	50	45	49	35	48	40	67	42	45	45	75	37	79	42	52	44	77	42	62	40	70	44	55	38
24....	46	31	43	34	45	36	46	31	40	31	66	53	37	35	70	44	63	46	44	32	66	43	69	39	70	51	62	40
25....	51	23	45	27	44	30	51	25	38	28	63	36	40	32	56	37	46	31	43	31	44	37	56	33	55	37	45	35
26....	50	21	47	23	47	24	49	30	42	24	45	29	44	32	52	27	49	27	46	28	51	29	41	30	49	34	45	33
27....	51	22	52	29	53	22	55	26	48	28	51	30	53	30	51	32	52	25	53	31	53	30	51	31	51	32	54	31
28....	47	25	43	28	56	24	43	33	45	29	55	34	49	32	58	35	56	29	54	33	58	30	54	21	56	37	56	30
29....	53	19	51	25	57	24	56	22	48	24	52	38	51	27	58	32	57	40	52	28	55	31	50	38	54	37	54	27
30....	69	26	68	34	70	30	74	33	46	29	63	36	60	31	62	32	72	33	66	34	67	33	61	34	63	35	54	28
Mns.	61.4	37.5	61.3	41.4	67.6	39.3	62.4	38.1	61.9	39.8	69.8	48.8	63.1	44.1	71.5	49.5	71.7	45.7	65.7	43.5	71.3	48.2	67.2	45.3	70.1	51.3	66.9	45.6

Date.	Wisconsin.										Iowa.																	
	Eau Claire.		Grantsburg.		Hancock.		La Crosse.		Madison.		Prentice.		Wausau.		Algona.		Cedar Rapids.		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	86	65	82	56	85	60	88	68	85	68	76	56	83	61	89	66	93	67	88	66	92	74	92	69	89	68	93	76
2....	79	66	87	55	84	68	80	59	80	67	76	58	80	67	82	69	81	69	82	61	84	73	77	67	82	69	90	74
3....	81	52	82	55	82	56	82	55	80	62	78	44	77	53	83	70	84	67	82	61	86	69	76	68	81	65	88	70
4....	83	68	81	56	81	69	89	70	88	63	78	56	75	58	89	69	95	68	90	70	95	73	90	73	91	71	94	73
5....	91	70	88	69	91	69	92	74	91	71	88	68	91	68	90	77	96	72	90	70	96	75	91	74	93	74	95	75
6....	84	68	95	74	89	70	83	60	87	70	88	66	83	62	81	69	86	71	79	58	93	71	85	70	87	71	92	73
7....	82	55	84	62	86	56	83	60	86	65	82	44	81	54	87	56	92	64	87	55	92	68	93	67	86	64	96	71
8....	91	55	85	65	92	65	92	71	91	66	87	62	89	63	91	68	99	65	93	68	97	73	95	72	93	71	98	71
9....	88	68	93	67	92	73	93	72	91	72	90	61	93	69	89	75	97	70	92	67	97	74	95	72	94	71	96	73
10....	81	69	90	70	89	69	77	63	80	68	90	65	85	70	76	64	78	70	76	62	88	69	81	68	80	69	92	71
11....	74	53	80	60	77	55	75	57	73	62	78	46	76	54	72	53	76	64	73	53	79	63	75	63	74	62	83	67
12....	77	52	74	45	80	50	78	53	75	56	76	44	79	50	73	48	76	55	75	47	79	55	76	58	75	55	79	59
13....	68	59	82	45	74	58	66	59	68	58	76	52	74	56	75	61	72	56	66	59	68	62	67	61	69	61	66	60
14....	68	49	73	53	75	58	70	53	74	58	68	39	70	55	68	44	73	60	68	48	77	62	66	55	74	60	76	61
15....	72	52	67	44	74	56	74	56	71	57	70	41	71	53	68	52	71	59	75	56	68	65	71	56	74	58	72	64
16....	65	52	70	43	72	50	61	49	63	53	70	42	56	48	65	45	62	59	61	43	69	56	65	52	63	55	68	56
17....	65	43	58	48	67	48	66	47	63	52	62	38	62	48	65	45	66	46	62	40	65	48	68	47	66	50	69	52
18....	62	50	65	39	63	45	60	52	57	48	64	42	62	44	56	45	55	47	55	46	59	50	58	44	54	49	60	47
19....	69	45	67	47	70	49	72	48	66	52	68	35	67	46	74	42	75	47	72	42	74	50	75	46	71	49	75	47
20....	62	52	72	46	66	45	59	50	62	51	68	44	68	48														

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 5—Continued.

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.															
					Cairo.		Mascontah.		La Salle.		Monmouth.		Mount Vernon. §§		Peoria.		Springfield.		Kishwau- kee.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	93	74	92	73	91	75	98	71	93	75	96	78	93	75	93	73	93	74	91	67
2.....	91	68	90	75	92	74	99	70	87	70	90	71	94	71	92	71	92	73	83	71
3.....	89	70	82	65	92	75	99	71	89	68	94	67	94	77	88	68	89	70	86	63
4.....	92	75	88	65	94	75	100	70	96	69	97	76	94	69	95	71	95	70	95	66
5.....	92	73	92	66	94	76	101	68	97	73	97	67	97	70	96	70	95	71	95	70
6.....	95	70	92	66	95	76	100	67	96	69	96	67	94	69	97	67	96	71	94	66
7.....	95	69	85	69	95	76	102	68	91	69	96	66	95	69	93	69	95	72	91	62
8.....	97	68	91	69	94	74	102	66	97	67	98	67	94	69	97	69	96	69	96	62
9.....	94	73	91	64	95	74	99	67	95	69	98	68	93	68	95	71	93	71	95	65
10.....	93	69	92	63	95	73	102	65	94	68	95	65	95	67	96	68	95	68	90	65
11.....	83	67	79	67	93	72	94	67	78	59	85	63	89	66	82	61	84	62	76	64
12.....	79	58	74	47	81	62	85	53	79	53	82	51	80	54	79	50	78	57	80	51
13.....	70	56	77	52	86	60	89	48	75	55	68	54	84	53	76	53	77	55	72	56
14.....	77	63	78	60	87	70	90	65	79	64	81	54	88	55	79	63	81	63	78	59
15.....	72	63	76	60	80	70	82	67	73	62	74	64	85	64	77	66	79	69	71	62
16.....	71	59	73	56	84	68	85	62	75	56	70	58	83	63	77	61	77	63	71	53
17.....	64	52	85	60	76	65	78	63	62	56	67	49	68	64	61	53	63	59	67	55
18.....	62	48	82	59	72	58	69	53	60	51	63	46	69	56	65	47	64	50	62	48
19.....	76	45	74	47	72	51	77	43	71	52	72	45	73	46	73	47	73	46	70	47
20.....	65	52	76	48	82	57	77	53	74	54	65	54	81	49	73	56	74	55	71	51
21.....	69	50	74	47	74	59	76	56	59	52	68	51	73	59	64	52	60	53	64	50
22.....	74	47	78	43	72	54	75	53	69	49	72	43	60	51	71	50	72	53	69	45
23.....	76	47	76	42	73	54	79	44	76	48	77	46	73	45	76	45	73	50	76	41
24.....	74	49	71	45	79	55	81	45	74	50	77	46	79	42	75	53	75	50	75	45
25.....	68	45	75	38	76	55	71	56	66	43	65	44	66	51	65	43	65	47	64	44
26.....	60	34	78	36	62	50	66	38	57	36	61	32	63	41	60	35	59	39	60	33
27.....	68	40	83	34	68	46	73	36	65	39	66	37	68	39	67	39	66	42	63	39
28.....	58	45	70	37	73	49	78	39	51	42	58	46	74	41	54	44	65	47	49	39
29.....	57	40	55	39	60	50	63	48	58	37	60	34	60	45	58	38	58	44	58	32
30.....	62	33	61	34	64	48	67	35	61	35	61	34	64	39	61	32	61	39	61	35
Means.....	77.2	56.7	79.7	54.2	82.0	63.4	85.2	56.9	76.6	56.3	78.3	54.8	80.8	57.6	77.8	56.2	78.1	58.4	75.8	53.5

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 6, MISSOURI VALLEY.

MONTROSE W. HAYES, District Editor.

## GENERAL SUMMARY.

There was a marked range in temperature during the month. The first 8 or 10 days were quite warm, the heat in the lower part of the district being equal to that of midsummer, while the last two-thirds of the month was exceptionally cool. In all the States of the district, except Montana, Wyoming, and Colorado, there were temperatures of 100° or higher, and in the three Mountain States just mentioned the maximum temperatures at some stations exceeded 90°. All of these high temperatures occurred before the 10th. The continued cool weather after the 10th was unusual, although not altogether unprecedented. In some part of every State in the drainage area there were temperatures considerably below the freezing point. Frost formed as far southeast as the mouth of the Missouri River, but in the extreme lower part of the district it was confined to low grounds. The damage from both frost and freezing weather was small; in the Dakotas some late crops were hurt, and in Iowa the maturing of corn was retarded, but probably more on account of the long succession of cool nights than because of any especially low temperatures. In other sections the damage appears to have been confined to garden vegetables.

In a large part of the drainage area the precipitation was greater than it usually is in September. This caused some inconvenience and delay in the gathering of crops, but it can not be said to have been actually detrimental.

## TEMPERATURE.

In St. Louis the mean temperature for the month was 0.9° above the normal. From this station westward and northward there was a gradual decrease in the monthly means, as compared with the normal for September, and in the mountain country forming the western border of the district there was a deficiency in temperature at the end of the month that was equal to a daily average of 8° to 10°. This deficiency was unusually great and places the month among the coldest of Septembers since State-wide observations have been made, and if the last 20 days of the month are considered apart from the first 10 days, they doubtless form a period that was cooler than any of equal length in any other September of the last 25

or 30 years. This, of course, would not be true of very limited areas, but applies to the Missouri River drainage area as a whole, which is of such great extent that it is unusual for decidedly abnormal weather conditions to prevail throughout it for a considerable length of time. The minimum temperature for the month at the individual stations was in no case where observations have been made for a lengthy period unprecedentedly low. The low mean was due to the long duration of abnormally cool weather, and not to any extremely cold days. The hot weather during the first 10 days was most pronounced in the lower third of the district, where temperatures reached almost as high a point as they did during the warmest part of the summer. The 7th, 8th, and 9th were the warmest days. In Montana this warm period was fairly well marked, by comparison with the remainder of the month, but it was not as pronounced as elsewhere, as the daily mean temperatures were very little above the normal.

## PRECIPITATION.

The precipitation was quite well distributed through the month and was above the normal in most of the district. The regions having a deficiency were northwestern Iowa and a large part of South Dakota, the Grand River Valley in south-central Iowa and north-central Missouri, a large part of Kansas, and in central Nebraska. On both sides of the Missouri River between Sioux City and Omaha the rains were heavy, and in numerous localities in the Mountain States they were especially heavy. The greatest amount for the month was 10.12 inches at Audubon, Iowa, and the greatest fall in 24 consecutive hours was 4.10 inches at Falls City, Nebr., on the 3d. There was no snow reported in Iowa; in Kansas and Missouri there was a mere trace; in Nebraska there was a very scattered fall, but in the remainder of the district there were quite general snows, which were heavy in portions of the mountain and foothill country.

## RIVERS.

The Kansas and Missouri tributaries of the Missouri River were low, but the main stream and its tributaries above Kansas City had a normal flow throughout the month.

TABLE 1.—Climatological data for September, 1912. District No. 6, Missouri Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.			
<b>Wyoming.</b>																					
Arapahoe	Fremont	5,500	2								3.65		0.90		6	8	17	5	sw.	Edw. L. Seyman.	
Barnum	Johnson	5,500	7																	Thos. Freeguard.	
Basin	Bighorn	3,862	13																	O. J. Robertson.	
Bennett	Carbon		3																	Chas. C. Young.	
Big Creek Station	do.	7,500	1																	U. S. Forest Service.	
Burns	Laramie	5,400	2	49.4		85	2	19	24	36	2.52		1.05		10	7	18	5	ne.	E. W. Bastian.	
Casper	Natrona	5,101	3																	M. C. Cook.	
Centennial	Albany	8,074	9	48.8	- 8.0	74	3	13	29	41	2.85		1.45	17.6	11	14	4	12	w.	Louis A. Gregory.	
Cheyenne	Laramie	6,088	41	49.2	- 8.2	81	3	22	25	44	3.91	+ 2.97	1.56	10.3	11	8	10	12	nw.	U. S. Weather Bureau.	
Chugwater	do.	5,282	11	48.3		85	2	18	25	44	2.37	+ 1.12	1.66	8.0	3	10	7	6	nw.	A. H. Woolever.	
Clark	Park	4,320	7	50.8		82	2	28	29	32	2.01		0.77	T.	11	10	6	14	n.	Chas. A. C. Snow.	
Cody	do.	5,000	5	48.8		82	2	25	25	40	1.45		0.41	5.0	8	11	3	16	w.	D. A. Tinkom.	
Crazy Creek	do.	6,828	1	39.1		68	3	7	29	54	1.59		0.73	2.4	12	11	2	17	w.	Jas. Smith.	
Dome Lake	Sheridan	8,821	4	37.4		69	6	10	29	36	4.05		0.90	40.5	11	10	11	9	w.	Abe Mills.	
Douglas	Converse	4,793	3																	Henry C. Miller.	
Dubois	Fremont	6,909	5	42.7		71	2	22	21	38	1.43		0.33	T.	7	1	18	11	w.	Dr. F. H. Welty.	
Eatons Ranch	Sheridan	4,600	7	49.4		87	2	24	25	40	4.23		0.97		9	13	5	12	n.	F. A. Eaton.	
Echeta	Crook	4,200	3																	M. R. Hunter.	
Elk Mountain	Carbon		7																	Wm. Richardson.	
Encampment	do.	7,322	7	47.8		74	4	18	26	42	1.28		0.55		6	2	15	1	n.	U. S. Forest Service.	
Ervay	Natrona	6,400	3	44.8		80	3	20	25	42	4.26		0.90	22.5	11	6	11	13	sw.	Frank Jameson.	
Fort Laramie	Laramie	4,270	34	52.9	- 7.1	92	4	22	25	46	2.84	+ 1.84	1.84	2.8	6	9	11	10	w.	John Hunton.	
Foxpark	Albany	9,015	2																	U. S. Forest Service.	
Germania	Bighorn	4,312	2	49.0		85	2	27	21	44	1.46		0.47	1.0	12	5	3	22	nw.	J. W. Peper.	
Gillette	Crook	4,546	6	49.1		88	2	26	24	38	2.30		0.70		11	11	5	14	n.	S. D. Perry.	
Horse Creek	Fremont		6	38.8		66	3	11	21	36	0.87		0.24	3.5	6	7	4	11	w.	U. S. Forest Service.	
Hunters Station	Johnson	8,000	4	40.2		74	3	12	29	42	3.42		0.87	30.0	13	13	6	11	w.	Do.	
Hyattsville	Bighorn	4,632	13	50.6	- 7.8	87	3	28	30	40	1.16		0.50	T.	8	11	4	15	w.	Wm. Booth.	
Jireh	Converse	5,050	2																	P. L. Ford.	
Kirtley	do.		8	53.8		88	4	12	25	47	3.61		1.71	3.5	15	8	15	7	nw.	D. M. ZumBrunnen.	
Kirwin	Park	9,187	3	34.2		62	2	10	20	38	4.22		1.00	49.0	13	11	10	9	w.	C. L. Tewksbury.	
Knowles	Crook	4,500	3																	Geo. A. Knowles.	
Lagrange	Laramie	4,510	2	52.6		89	1	22	25	45	4.30		1.26	2.0	10	15	7	8	n.	Owen Shupp.	
Lander	Fremont	5,372	20	47.6	- 7.6	81	3	21	23	40	3.88	+ 2.86	0.87	5.3	10	8	11	11	sw.	U. S. Weather Bureau.	
Laramie	Albany	7,188	21	46.0	- 7.4	77	2	18	30	40	2.64	+ 1.62	1.48	10.5	7	19	5	6	so.	University of Wyoming.	
Leo	Carbon	6,878	10																	C. A. Cowdin.	
Lolabama Ranch	Park	7,052	8	43.4		75	4	14	29	42	1.11		0.40	6.0	5	12	7	11	w.	Mary E. Painter.	
Lovell	Bighorn	3,825	6	49.4		85	2	24	30	45	2.13		0.30	1.0	11	3	12	15	n.	R. Fred Harrison.	
Lusk	Converse	5,007	21																	D. E. Goddard.	
Manville	do.	5,050	2																	L. C. Stoddard.	
Moorecroft	Crook	4,111	8	49.4	- 7.9	95	3	25	25	42	1.75		1.12	3.5	13	2	19	9	w.	C. T. McCampbell.	
Moore	Albany	6,000	11	48.1		84	2	21	15	46	3.45	+ 1.78	0.50	2.0	9	5	18	5	n.	Edwin Moore.	
Newcastle	Weston	4,319	5	48.4		88	1	22	25	38	2.14		1.15	0.4	10	5	16	9	w.	Dr. S. W. Johnson.	
Pathfinder	Natrona	5,735	6	49.4		77	2	26	15	35	2.15		0.56	12.0	10	6	11	13	sw.	U. S. Reclamation Service.	
Pinebluff	Laramie	5,038	9	52.1		87	1	22	25	48	3.42		1.60		10					C. L. Beatty.	
Pine Ridge	Crook																			J. E. S. Altaffer.	
Powell	Park	4,376	4			80	7	24	29	38	1.80		0.66	T.	5	14	6	10	nw.	U. S. Reclamation Service.	
Rawlins	Carbon	6,748	10	47.6	- 6.4	75	2	19	15	45	2.25	+ 1.09	0.90	3.7	8	13	10	7	w.	E. J. Ehrenfeld.	
Riverton	Fremont	4,960	3	49.6		84	3	26	25	46	3.32		1.04	4.0	5	14	10	6		F. H. Allyn.	
Rockypoint	Crook																			P. Woxen.	
Saratoga	Carbon	6,785	14	48.3		82	13	18	25	47	0.47		0.25	2.9	5	20	5	4	w.	G. Frederick Clark.	
Seven Mile Creek	do.			40.0		70	5	10	25	31	2.85		1.03	19.0	7	7	7	5	19	sw.	U. S. Forest Service.
Sheridan	Sheridan	3,790	17	48.7	- 6.6	89	2	23	30	50	3.79	+ 1.73	0.88	1.6	15	6	7	18	nw.	U. S. Weather Bureau.	
Shoshone Dam	Park	5,385	6	49.8		81	2	31	28	30	2.61		0.58	9.8	12	5	7	18	w.	U. S. Reclamation Service.	
Soldiers Home	Johnson	4,635	20																	Joel C. Smiley.	
South Pass City	Fremont	7,873	10	39.8		70	25	13	21	46	0.92		0.20	2.5	9	4	5	12	sw.	John Sherlock.	
Sundance	Crook			48.0		85	4	17	25	34	2.70		0.50		11	5	13	12	w.	Geo. W. Ashdown.	
Thermopolis	Fremont	4,350	8	51.2		88	2	28	21	45	3.49		0.78	3.0	14	12	9	9	n.	A. L. Duhig.	
Thornton	Weston			49.4		90	4	22	25	38	1.53		0.62	2.5	10	8	6	16	nw.	Geo. H. Ferguson.	
Ulm	Sheridan																			W. H. Coleman.	
Verona	do.	4,360	3																	O. A. Roode.	
Wheatland	Laramie			51.4		84	2	22	30	33	3.76		2.24	1.0	9	14	3	13	w.	A. de F. Snively.	
Winters Ranch	Carbon	7,400	2																	Ira G. Wiant.	
Wiley	Park	5,375	3																	Thos. S. Harrison.	
Woodrock	Sheridan										5.99		1.10		18	8	9	13	sw.	U. S. Forest Service.	
Worldand	Bighorn		1	51.3		88	3	25	30	44	1.51		0.57		11	9	11	10	nw.	Prof. B. C. Buffum.	
Wynote	Laramie	4,207	5	52.4		89	3	19	30	53	2.91		1.10	T.	5	10	14	6	nw.	U. S. Reclamation Service.	
Yellowstone Park	Yellowstone Park	6,200	24	42.8	-10.6	69	3	21	21	42	1.09	+ 0.08	0.43	1.9	13	3	10	17	sw.	U. S. Weather Bureau.	
Fairview Dome	do.	7,000	7	39.8		70	4	10	26	42	1.21		0.30	3.0	6	6	7	17	sw.	U. S. Army.	
Fountain	do.	7,220	6	36.3		68	3	10	17	50	0.60		0.40	6.0	3	13	6	11	w.	Do.	
Gallatin	do.		1																	Do.	
Grand Canyon	do.	7,900	5	40.4		89	4	16	29	48	2.57		0.95	7.0	13	6	10	14	nw.	Do.	
Lake Yellowstone	do.	7,733	8	39.2		74	17	14	29	50										Do.	
Norris	do.	7,575	8					11	17											Do.	
Riverside	do.	6,500	6	41.6		66	2	20	16	44	0.69		0.60	T.	3	13	4	13	w.	Do.	
Sylvan Pass	do.	7,000	5	40.5		72	5	11	23	41	0.70		0.20	4.0	5	7	0	23	w.	Do.	
Thumb	do.	7,772	6																	Do.	
Tower Falls	do.	6,250	3	42.8		70	3	14	29	57	1.70		0.55	3.6	8	17	7	6	nw.	Do.	
Upper Geyser Basin	do.	7,395	8	38.2		66	3	14	21	40					18	2	9	nw.	Do.	Do.	
<b>Montana.</b>																					
Adel	Cascade	5,200	13	45.8	- 6.3	74	30	20	29	45	4.72	+ 2.77	0.75	4.5	11	13	4	13	w.	Mrs. Bessie F. Burch.	
Augusta	Lewis and Clark	4,071	13	47.0	- 5.8	81	30	16	29	52	2.19	+ 0.44	1.18	0	5	19	3	8	w.	C. C. Covington.	
Babb	Teton	4,461	5																		

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Montana—Continued.</b>																				
Busby	Rosebud	8	49.1	91	2	20	29	52	3.46	0.81	11.0	15	7	11	12	w.	Rev. G. A. Linscheid.			
Busteed	Sweet Grass	4	49.4	89	2	19	29	44	2.22	0.50	3.0	10	13	8	9	nw.	T. H. Busteed.			
Cabin Creek	Beaverhead	2							0.68	0.41	4.5	4	15	10	5	s.	W. J. Crowell.			
Canyon Ferry	Lewis & Clark	3,644	49.6	-6.8	76	7	24	23	1.76	+0.62	0.44	0	9	12	8	10	nw.	A. C. Pratt.		
Cascade	Cascade	3,361	50.8		76	30	21	29	2.43	0.77	T.	14	10	11	9	sw.	Dr. E. E. James.			
Chessman Reservoir	Lewis & Clark	5,275	41.6		63	6	18	29	2.81	0.55	2.0	10	13	1	16	w.	C. D. Schmidt.			
Chester	Hill	3,140	48.6		75	16	21	15	1.10	0.45	0	6	12	4	14	nw.	E. D. Keith.			
Chinook	Blaine	2,502	50.9	-6.8	77	7	23	16	1.26	+0.07	0.68	0	9	4	13	10	w.	T. O'Hanlon Co.		
Clemons	Lewis & Clark	4,672							3.08	1.30	0.5	11	7	9	14	w.	Frank Eberl.			
Clydepark	Park	1	46.4		77	2	14	24	1.07	0.70	1.0	7	12	5	13	nw.	Frank Taylor.			
Crow Agency	Rosebud	3,041	51.3	-8.7	88	2	23	29	3.65	+2.74	0.39	3.5	14	8	0	21	nw.	Ira R. Bamber.		
Cut Bank	Teton	3,700	48.0	-4.0	77	21	21	15	2.42	+0.50	0.92	0	5	9	8	8	w.	Chas. N. Thomas.		
Denton	Fergus	3,500	50.2		81	30	27	28	1.72	0.56	1.0	10	17	3	10	nw.	P. J. Griesenauer.			
Dillon	Beaverhead	5,147	50.7	-4.7	74	1	28	26	0.86	-0.71	0.12	T.	10	12	7	11	sw.	Prof. J. E. Monroe.		
Dry Creek	Broadwater	5,500							2.08	0.50	0	12	7	8	15	nw.	J. C. Stuart.			
Dry Wolf Camp	Cascade	6,000							1.78	0.43	9.6	10	14	6	10	nw.	Mrs. Harriet R. Eveleth.			
Dunkirk	Teton	3,293							1.68	0.51	4.0	6	16	7	7	w.	B. C. Protzman.			
East Gallatin River	Gallatin	6,000							2.32	0.80	1.0	10	6	10	14	w.	John Eberhart.			
Ekalka	Custer	11	51.6	-7.6	92	4	22	29	2.13	+0.44	0.44	0	9	13	7	10	w.	William Freese.		
Elkhorn	Jefferson	6,576							2.23	0.60	5.9	12	9	7	14	w.	James Heagan.			
Fallon	Custer	2,208	51.6		92	2	18	29	0.81	0.38	0	4	12	11	7	w.	Mrs. A. C. Gifford.			
Findon	Meagher	6,000							2.37	0.86	8.5	15	10	4	14	w.	Lewis Cameron.			
Fish Creek	Silver Bow	8,500	39.0		60	30		30	2.65	0.50	10.5	8	5	10	14	sw.	O. B. Tilton.			
Flathead Creek	Gallatin	6,000	44.6		79	26	15	28	2.18	0.52	3.0	11	4	8	18	sw.	Alta Williams.			
Forsyth	Rosebud	2,514	53.4		95	2	24	30	2.85	0.93	T.	7	10	6	14	w.	H. Mackenzie.			
Fort Benton	Chouteau	2,630	48.6	-9.1	72	11	26	28	1.31	+0.21	0.70	0	5	18	9	16	w.	Jere Sullivan.		
Fort Shaw	Cascade	3,500	49.6	-6.3	77	30	20	29	1.54	+0.64	0.75	T.	11	15	3	12	sw.	U. S. Reclamation Service.		
Fort Harrison	Lewis & Clark	4,004	49.0		76	30	25	28	1.06	+0.03	0.75	0	3	13	10	7	w.	Post Hospital.		
Glasgow	Valley	2,092	50.0	-8.3	79	2	20	29	1.10	-0.04	0.35	0	8	9	7	14	ne.	W. M. Leonard.		
Glendive	Dawson	2,069	51.6	-9.5	90	2	20	29	1.10	-0.04	0.35	0	8	9	7	14	ne.	E. C. Leonard.		
Gold Butte	Hill	4	47.5		74	17	23	24	2.44	0.75	2.0	11	10	11	9	w.	Joseph Berthelote.			
Graham	Custer	6	50.0		90	4	21	29	3.17	0.84	1.7	13	12	4	14	nw.	J. S. Rue.			
Grayling	Gallatin	6,700	37.8		67	30	29	55	0.47	0.20	T.	4	6	9	8	sw.	T. Kerzenmacher.			
Great Falls	Cascade	3,350	51.4	-6.5	76	6	30	29	2.10	+0.85	0.66	T.	9	4	13	13	sw.	Robert Deardorf.		
Halfway House	Broadwater	6,900							1.43	0.40	T.	7	10	8	12	ne.	Gordon Deans.			
Harlowton	Meagher	4,165	46.4		75	2	19	28	0.50	0.35	T.	2	9	7	14	w.	Joseph Muir.			
Havre	Hill	2,505	48.6	-9.0	76	7	22	22	1.20	+0.17	0.72	2.2	9	13	7	10	e.	U. S. Weather Bureau.		
Helena	Lewis & Clark	4,110	49.0	-7.2	74	18	27	29	1.73	+0.67	0.92	T.	7	9	6	15	sw.	Do.		
Hghwood	Chouteau	5							3.02	0.77	0.3	10	17	1	12	sw.	W. S. McCord.			
Huntley	Yellowstone	3,014	52.0		88	2	22	29	2.85	0.82	0	8	16	6	8	e.	U. S. Reclamation Service.			
Jones Canyon	Gallatin	6,800							3.81	1.12	14.0	10	15	0	15	e.	James McCune.			
Jordan	Dawson	6	50.4		80	30	23	29	0.85	0.25	0	4	5	12	10	nw.	W. C. Henderson.			
Knobles Ranch	Hill	1							2.42	0.71	4.0	12	11	8	11	w.	F. H. Knoble.			
Lonetree	Chouteau	3,280	51.2		82	30	22	29	1.60	0.55	0	7	18	3	9	w.	E. Wilson.			
Lytle	Teton	49.0	78	30	25	28	40	1.53	0.62	2.0	8	15	8	7	nw.	J. F. Falt.				
Malta	Valley	2,240	49.8		77	7	22	28	0.93	0.38	0	6	14	7	9	n.	U. S. Reclamation Service.			
Medicine Lake	do.	1	48.5		82	2	22	27	0.87	0.50	0	5	18	3	9	nw.	J. S. Collier.			
Mildred	Custer	3							1.60	0.45	T.	8	12	13	5	nw.	Leon B. Clark.			
Miles City	do.	2,371	52.9	-8.3	93	2	26	29	1.44	+0.52	0.44	T.	9	6	17	7	nw.	U. S. Weather Bureau.		
Norris	Madison	4,845	50.7		76	30	29	29	1.96	0.46	1.0	11	8	13	9	s.	Madison River Power Co.			
Olsen Creek	Jefferson	6,345							2.11	0.66	0	7	13	7	10	w.	Robert Olsen.			
Pinegrove	Musselshell								2.29	0.55	3.0	7	5	13	12	nw.	G. A. Woodcock.			
Pipestone Pass	Jefferson	7,000							1.83	0.65	3.0	11	13	7	10	e.	Mrs. T. Keimrayer.			
Plevna	Custer	2,757	50.0		88	2	21	29	1.53	0.35	0	9	12	9	9	nw.	C. C. Conser.			
Poplar	Valley	2,020	51.8	-8.7	88	2	20	29	0.25	-0.69	0.25	0	1	10	9	11	w.	H. M. Cosier.		
Red Lodge	Carbon	5,548	43.2	-10.3	79	2	19	16	3.49	+1.66	0.66	12.0	10	6	9	15	nw.	I. A. Draper.		
Renova	Jefferson	4,383	48.4	-7.7	79	11	19	29	1.43	+0.15	0.41	T.	8	16	2	12	sw.	F. B. Elmer.		
Ryegate	Musselshell	3,640	53.4		90	2	20	29	2.08	0.83	0	6	17	5	8	w.	H. Scherfenberg.			
Savage	Dawson	2,050	52.2		87	2	22	29	1.15	0.30	0	10	13	7	10	w.	U. S. Reclamation Service.			
Shelby	Teton	3,276	49.2		79	6	22	22	1.56	0.65	T.	7				n.	C. D. Kicher.			
Sidney	Dawson	1	50.4		84	2	23	25	1.44	0.50	0	7	15	4	11	n.	Fred W. Arndt.			
Springbrook	do.	10	49.4	-10.1	87	2	21	29	1.54	+0.17	0.44	1.0	6	5	8	17	n.	Mrs. H. L. Miller.		
Stearns	Lewis & Clark	4,500							3.82	1.18	1.5	9	13	8	9	sw.	Estelle W. Estill.			
Sunlit farm	Blaine	1	46.4		73	7	17	28	4.02	0.23	T.	9	13	5	12	nw.	C. R. Noyes.			
Sun River Canyon	Teton	4,650	45.2		77	30	17	29	5.5	0.70	0.2	13	11	7	12	w.	U. S. Reclamation Service			
Trail Creek	Park	6,000							3.13	0.83	11.4	10	18	4	8	w.	A. Weidenbauer.			
Utica	Fergus	5,000	48.0	-8.1	76	7	22	29	1.64	+0.37	0.32	T.	13	15	11	4	w.	P. W. Korell.		
Valentine	do.	5	50.0		85	7	22	16	5.6	0.68	0	6	16	3	11	w.	B. M. Bean.			
Valier	Teton		48.6		78	30	24	16	4.8	0.81	0	11	9	5	7	w.	R. M. Templeton.			
Virginia City	Madison	5,880	47.8	-6.3	73	30	22	21	4.8	1.57	+0.15	0.55	0	7	10	8	w.	W. R. Baker.		
Wall Rock Mountain	Broadwater	5,600							2.00	0.47	0.1	11	11	13	6	nw.	D. L. Doig.			
Warm Springs Creek	Madison	7,500							1.85	1.07	11.9	10	2	5	23	u.	M. D. Lytle.			
Wheaton	Musselshell		50.8		84	2	22	29	0.76	0.40	0	3	15	4	11	nw.	P. O. Balgord.			
White Sulphur Springs	Meagher		45.8		72	30	20	29	4.5	0.55	3.0	7	6	17	7	se.	P. R. Wild.			
Wolf Creek	Lewis & Clark	4,000	51.8		76	12	30	29	4.4	0.82	0	15	11	9	10	sw.	H. A. Reed.			
Woodville	Jefferson	6,376							1.92	0.71	0.5	9	7	18	5	sw.	Anna C. Kinman.			
<b>North Dakota.</b>																				
Aplin	Oliver	6	52.2		93	3	19	25	4.5	2.71	0.80	T.	9	10	6	14	nw.	J. C. Hagelbarger.		
Arnegard	McKenzie		49.7		103	4	23	29	4.5	2.23	0.62	T.	10				nw.	A. B. Waterman.		
Ashley	McIntosh	2,001	52.8	-4.1	88	3	26	29	3.6	1.93	0.90	T.	6	11	6	13	nw.	R. C. Miles.		
Beach	Billings	2,576	48.7		89	2	23	25	5.0	2.10	0.47	T.	11	9	13	8	n.	D. J. Steiner.		
Bellevue	Stark	2,583							1.67	0.40	T.	7	10	10	10	w.	W. F. Gobius.			
Berthold Agency	McLean	2,082	50.6	-7.4	93	3	19	29	5.6	2.37	+1.11	1.00	T.	11	12	4	14	nw.	C. L. Hall.	
Bismarck	Burleigh	1,674	52.6	-4.5	94	4	24	29	4.5	2.42	+1.23	0.53	T.	13	8	7	15	nw.	U. S. Weather Bureau	
Broncho	Mercer	5																	E. M. Walker.	
Buford	Williams	1,944	51.6																	

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>North Dakota—Contd.</b>																				
Haley	Bowman	4	54.1	93	3	18	29	49	2.19	0.70	1.0	8	12	6	12	nw.	A. O. Lawrence.			
Hettinger	Adams	2,253	6	48.1	78	2	21	29	44	1.02	0.30	T.	9	10	12	14	nw.	W. R. Lanxon.		
Howard (near)	Divide	2,275	6	51.1	-6.1	89	3	23	29	52	0.55	+1.03	0.55	T.	13	10	2	18	nw.	C. P. Amsbaugh.
Jamestown	Stutsman	1,390	25	50.4	89	3	20	29	42	2.02	0.25	T.	11	14	3	13	nw.	Thos. Pettigrew.		
Lamaine	Kidder	1,509	3	44.2	87	3	19	26	36	2.97	1.00	1.0	8	12	10	8	nw.	E. V. Virgin.		
McHenry (near)	Eddy	1,509	3	50.0	90	3	19	29	47	2.09	0.70	1.5	9	11	4	15	nw.	John Knox.		
Marmarth (near)	Bowman	1,509	3	50.0	90	3	19	29	47	2.09	0.70	1.5	9	11	4	15	nw.	S. P. Grane.		
Marstonmoor	Stutsman	2,225	16	58.1	+0.9	95	3	32	21	64	0.45	+2.5	0.45	T.	9	9	12	nw.	H. H. McCumber.	
Medora	Billings	1,590	15	53.94	-1.7	93	3	22	26	42	0.85	T.	7	14	9	12	nw.	J. W. Hesser.		
Melville	Foster	1,590	15	53.94	-1.7	93	3	22	26	42	0.73	T.	7	14	9	12	nw.	J. O. Kiddier.		
Mott	Hettinger	1,955	21	50.7	-6.1	91	3	19	29	44	0.15	+1.24	0.53	2.0	14	7	2	21	sw.	C. J. Opland.
Napoleon	Logan	2,400	17	50.8	-5.4	93	3	20	25	46	0.68	T.	10	7	5	18	nw.	C. J. Connolly.		
New England	Hettinger	1,531	3	51.6	94	4	24	29	50	2.14	0.48	T.	11	13	9	7	14	nw.	J. V. M. Sundberg.	
New Rockford	Eddy	2,163	6	50.5	91	3	21	25	47	2.52	0.50	T.	13	9	9	10	11	nw.	J. Christiansen.	
New Salem	Morton	1,857	17	53.4	92	4	25	25	40	1.97	0.57	8.0	9	9	10	11	nw.	J. E. Goforth.		
Orange	Adams	1,857	17	53.4	92	4	25	25	40	1.97	0.57	8.0	9	9	10	11	nw.	R. E. Sheriff.		
Ranger	Billings	1,857	17	53.4	92	4	25	25	40	1.97	0.57	8.0	9	9	10	11	nw.	H. S. Wood.		
Steele	Kidder	1,857	17	53.4	92	4	25	25	40	1.97	0.57	8.0	9	9	10	11	nw.	E. G. Ranun.		
Turtle Lake	McLean	1,731	9	53.4	92	4	25	25	40	1.97	0.57	8.0	9	9	10	11	nw.	W. R. Peterson.		
Washburn	do.	1,875	33	50.0	-9.5	84	4	24	29	44	0.89	-0.02	0.27	T.	9	4	13	13	sw.	U. S. Weather Bureau.
Williston	Williams	1,875	33	50.0	-9.5	84	4	24	29	44	0.89	-0.02	0.27	T.	9	4	13	13	sw.	U. S. Weather Bureau.
<b>South Dakota.</b>																				
Aberdeen	Brown	1,300	22	54.6	-4.5	95	3	23	27	49	1.72	-0.13	0.50	T.	9	16	7	7	ne.	D. G. Gallett.
Academy	Charles Mix	13	58.0	-5.5	95	8	27	27	35	1.03	0.19	0.2	9	14	4	12	nw.	I. T. Lothrop.		
Ardmore	Fall River	3,557	3	57.6	-5.5	90	8	24	27	45	1.05	-1.03	0.50	T.	4	12	10	8	nw.	F. L. Kelso.
Armour	Douglas	1,521	16	57.6	-5.5	90	8	24	27	45	1.05	-1.03	0.50	T.	4	12	10	8	nw.	T. J. Markey.
Bellefourche	Butte	3,000	4	52.8	85	7	21	29	45	2.57	0.65	T.	9	6	9	15	nw.	U. S. Reclamation Service.		
Brookings	Brookings	1,636	23	56.4	-3.3	92	5	23	27	40	1.61	-0.47	0.75	2.0	6	9	12	nw.	Experiment Station.	
Bryant	Hamlin	1,846	20	51.2	-7.8	94	3	19	29	55	1.72	-0.93	0.43	1.0	11	7	17	6	nw.	J. W. Ault.
Camp Crook	Harding	3,000	20	51.2	-7.8	94	3	19	29	55	1.72	-0.93	0.43	1.0	11	7	17	6	nw.	U. S. Forest Service.
Canton	Lincoln	1,248	17	59.6	-2.4	94	5	26	27	44	1.55	-0.92	0.86	0	4	13	15	2	se.	John H. Holsey.
Cascade Springs	Fall River	3,422	4	54.0	92	3	18	25	46	1.18	0.58	T.	4	12	3	15	nw.	Fred Noerenberg.		
Castlewood	Hamlin	1,685	6	55.8	93	8	20	27	40	1.40	0.42	3.0	10	7	6	17	nw.	M. N. Bradley.		
Centerville	Turner	1,229	15	58.6	-5.9	93	4	28	27	42	0.52	-0.74	0.15	2.0	14	9	8	13	nw.	Frank Williams.
Chamberlain	Brule	1,363	14	58.6	-5.9	93	4	28	27	42	0.52	-0.74	0.15	2.0	14	9	8	13	nw.	W. B. Van Horn.
Clark	Clark	1,779	18	54.0	-5.3	95	5	20	27	48	1.97	-0.47	0.51	T.	10	10	9	11	nw.	O. H. LaCraff.
Cottonwood	Stanley	2,414	4	54.8	95	7	22	29	47	1.30	0.56	T.	10	10	9	11	nw.	Experiment Station.		
Custer	Custer	5,316	3	51.2	95	3	18	21	50	2.25	0.77	0.2	5	15	13	2	n.	R. P. Imes.		
Daviston	Perkins	4,535	3	47.8	89	3	14	25	44	4.70	0.68	0.2	11	11	10	9	nw.	P. A. Sattler.		
Deadwood	Lawrence	6,000	3	51.2	95	3	18	21	50	2.25	0.77	0.2	5	15	13	2	n.	R. E. Grimshaw.		
Deerfield	Pennington	1,726	19	57.0	-3.0	93	5	22	27	38	1.92	-0.04	0.55	0.5	6	16	7	7	nw.	Frank E. Miller.
De Smet	Kingsbury	2,250	3	55.2	95	4	27	25	39	1.92	0.40	T.	10	10	10	10	nw.	J. O. Purinton.		
Dowling	Stanley	6,195	3	53.7	95	3	23	25	37	1.76	0.55	0.7	10	13	11	6	nw.	M. P. Dowling.		
Dumont	Lawrence	2,415	3	53.7	95	3	23	25	37	1.76	0.55	0.7	10	13	11	6	nw.	A. B. Wood.		
Eagle Butte	Dewey	2,415	3	53.7	95	3	23	25	37	1.76	0.55	0.7	10	13	11	6	nw.	Dr. John F. Chandler.		
Eales	Potter	1	1	51.2	94	3	19	29	43	2.16	0.75	5.8	9	7	9	14	nw.	A. H. Peterson.		
Edson	Meade	4,700	3	51.2	94	3	19	29	43	2.16	0.75	5.8	9	7	9	14	nw.	J. C. Stoner.		
Elk Mountain	Custer	5,723	3	51.2	94	3	19	29	43	2.16	0.75	5.8	9	7	9	14	nw.	James E. Blaine.		
Ellingson	Perkins	1,884	3	52.8	92	3	22	27	42	1.43	0.54	1.5	10	8	15	7	nw.	Carl G. Moen.		
Englewood	Lawrence	1,884	3	52.8	92	3	22	27	42	1.43	0.54	1.5	10	8	15	7	nw.	T. J. Cummins.		
Eureka	McPherson	1,884	3	52.8	92	3	22	27	42	1.43	0.54	1.5	10	8	15	7	nw.	Experiment Station.		
Fairfax	Gregory	1,595	17	56.2	-3.9	93	3	24	27	42	1.05	-0.40	0.36	T.	14	6	14	10	n.	U. G. Stevenson.
Faulkton	Faulk	1,565	22	58.0	-3.2	93	8	25	27	37	1.86	-0.39	1.05	0.2	5	9	9	12	n.	Miss Belle Talcott.
Flandreau	Moody	1,231	20	58.4	-3.8	101	8	23	27	40	1.83	+0.07	0.99	4.0	8	16	8	6	se.	W. A. Harris.
Forestburg	Sanborn	3,624	20	50.5	-10.1	90	5	20	29	39	2.50	+1.59	0.50	0.5	11	9	5	16	w.	S. S. Judy.
Fort Meade	Meade	1,371	3	52.4	93	5	18	27	47	1.04	0.22	T.	7	11	9	5	16	w.	Post Hospital.	
Frederick	Brown	1,371	3	52.4	93	5	18	27	47	1.04	0.22	T.	7	11	9	5	16	w.	J. E. Jeffers.	
Gannaville	Buffalo	6,430	3	51.2	94	3	19	29	43	2.16	0.75	5.8	9	7	9	14	nw.	A. L. Hanson.		
Greenmont	Lawrence	6,430	3	51.2	94	3	19	29	43	2.16	0.75	5.8	9	7	9	14	nw.	H. C. Hoffbuhr.		
Greenwood	Charles Mix	20	60.7	-4.8	101	7	30	28	48	4.97	1.85	25.0	15	5	13	12	w.	T. C. Williamson.		
Hardingrove	Stanley	6,600	2	54.1	96	3	24	21	51	1.55	0.40	0.1	11	6	10	5	nw.	Mrs. Laura Sinclair.		
Harveys Ranch	Lawrence	6,282	2	54.1	96	3	24	21	51	1.55	0.40	0.1	11	6	10	5	nw.	Rufus J. Piliher.		
Hermosa	Custer	3,278	6	53.6	95	3	22	24	37	0.89	1.36	9.0	12	10	4	16	w.	Jerome Harvey.		
Highmore	Hyde	1,890	16	56.0	91	4	25	27	39	0.71	0.16	0	10	13	3	14	nw.	S. M. Booth.		
Hopewell	Stanley	1,564	20	55.4	93	5	21	27	41	1.66	0.42	2.0	11	10	6	14	n.	Experiment Station.		
Howard	Miner	1,564	20	55.4	93	5	21	27	41	1.66	0.42	2.0	11	10	6	14	n.	E. R. Myers.		
Howell	Hand	1,306	30	56.8	-2.8	96	8	25	27	40	1.40	-0.54	0.42	0.5	9	9	15	6	se.	J. J. Cox.
Huron	Beadle	1,530	15	53.8	-5.0	92	3	23	27	47	0.72	-0.13	0.48	0.5	15	14	7	9	nw.	M. A. Shuster, Jr.
Ipswich	Edmunds	2,467	3	56.0	97	3	24	25	41	1.28	0.35	1.2	9	10	8	12	nw.	U. S. Weather Bureau.		
Kadoka	Stanley	1,689	19	57.8	-5.1	97	4	24	25	45	1.16	-0.29	0.41	1.0	11	13	6	11	s.	H. J. Dailey.
Kennebec	Lyman	1,295	8	54.4	94	5	22	27	39	2.93	0.55	2.0	6	17	3	10	nw.	Rev. D. S. Brown.		
Kidder	Marshall	1,788	23	56.8	-5.3	93	8	28	27	37	0.74	+0.19	1.05	4.0	5	19	0	11	ne.	R. C. Van Horn.
Kimball	Brule	2,700	15	58.4	-2.8	98	5	22	27	39	1.67	-0.59	0.26	0	7	15	8	7	nw.	H. C. Schussler.
Lacreek	Bennett	1,400	15	58.4	-2.8	98	5	22	27	39	1.67	-0.59	0.26	0	7	15	8	7	nw.	G. D. Rose.
La Delle	Spink	5,200	3	48.5	97	4	25	25	46	3.75	0.63	5.5	12	5	12	14	nw.	L. E. Baumgarten.		
Lead	Lawrence	2,345	3	53.8	96	3	21	25	45	1.99	0.42	0.8	12	10	6					

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>South Dakota—Contd.</b>																				
Pollock.	Campbell.	6	52.4	96	3	22	30	53	2.21	0.78	0.4	7	13	6	11	nw.	J. H. Jones.			
Rapid City.	Pennington.	3,251	52.8	92	3	27	29	40	0.90	-0.36	0.35	10	10	8	12	nw.	U. S. Weather Bureau.			
Redfield.	Spink.	1,295	56.5	96	7	25	27	52	1.15	-0.87	0.64	7	18	2	10	nw.	A. S. Hall.			
Rochford.	Pennington.	5,228	53.7	93	6	22	25	51	1.41	+0.42	0.92	7.5	8	7	9	nw.	Mrs. M. E. Deffenbaugh.			
Rosebud.	Todd.	2,600	53.7	93	6	22	25	51	1.41	+0.42	0.40	5.0	7	12	9	nw.	W. M. Ege.			
Roslyn.	Day.	6	53.7	93	8	24	27	40	2.19	0.80	2.5	9	12	7	11	nw.	O. O. Floren.			
Selby.	Walworth.	4	55.0	91	3	26	25	43	2.10	0.58	2.5	8	8	7	15	nw.	Miss Gertrude Hall.			
Sioux Falls.	Minnehaha.	1,400	57.6	95	8	28	27	38	3.36	+1.10	1.28	12	9	12	9	s.	J. H. Bechtold.			
Sisseton.	Roberts.	1,202	55.4	93	5	28	26	36	1.32	0.65	0.65	8	14	0	16	s.	George Gray.			
Sorum.	Perkins.	1	55.4	92	4	24	27	43	0.41	0.17	3.0	12	6	11	13	w.	M. S. Eberhart.			
Spearfish.	Lawrence.	3,647	50.4	88	3	25	25	40	3.73	+2.48	1.20	3.0	12	6	11	13	w.	A. E. Johnson.		
Stephan.	Hyde.	1,840	55.4	92	4	24	27	43	0.41	0.17	T.	3	12	3	15	nw.	Rev. A. Mattingly.			
Tama.	Meade.	3	54.8	99	4	25	25	48	2.23	0.67	2.0	9	13	7	10	nw.	Mrs. O. V. Hansell.			
Timber Lake.	Dewey.	2,163	54.8	99	4	25	25	48	2.23	0.67	2.0	9	13	7	10	nw.	R. T. Hollihan.			
Tyndall.	Bonhomme.	1,418	59.0	98	8	28	30	41	1.25	-0.41	0.60	T.	9	11	11	8	nw.	F. F. Chladek.		
Vale.	Butte.	2,765	53.8	96	3	21	29	49	2.86	0.77	1.0	12	9	10	11	nw.	U. S. Reclamation Service.			
Vermilion.	Clay.	1,222	61.7	95	5	29	27	36	2.34	-1.34	0.94	0	8	16	3	11	nw.	Prof. E. C. Perisho.		
Waters Ranch.	Lawrence.	4,000	54.9	95	8	21	27	44	2.61	+0.78	1.01	7.2	14	9	6	15	nw.	George Waters.		
Watertown.	Codington.	1,735	54.9	95	8	21	27	44	2.61	+0.78	1.30	1.0	10	9	8	13	s.	Robert Q. Wood.		
Wentworth.	Lake.	19	56.8	98	8	27	27	38	1.16	+0.05	0.28	5.0	11	14	12	4	nw.	R. C. Zimmerman.		
Wessington Springs.	Jerauld.	1,410	56.8	98	8	27	27	38	1.16	+0.05	0.28	5.0	11	14	12	4	nw.	Mrs. N. J. Dunham.		
White Lake.	Aurora.	1,646	56.6	97	4	27	24	43	1.04	0.68	0.40	3	21	2	7	s.	Mrs. G. A. Rogers.			
Winner.	Trip.	2,000	56.6	97	4	27	24	43	1.04	0.68	0.25	T.	9	12	5	13	nw.	J. W. Barnum.		
Yankton.	Yankton.	1,234	59.6	97	5	30	28	34	2.68	+0.23	1.13	0	12	10	11	9	nw.	U. S. Weather Bureau.		
<b>Minnesota.</b>																				
Pipestone.	Pipestone.	1,710	59.7	90	5	26	27	36	3.48	+0.63	1.50	T.	9	3	18	9	se.	A. L. Doan.		
<b>Colorado.</b>																				
Albion Lake.	Boulder.	10,500	55.2	89	8	24	25	45	1.59	0.87	1.5	5	19	6	5	ne.	F. R. Dungan.			
Arriba.	Lincoln.	5,243	55.2	89	8	24	25	45	1.59	0.87	1.5	5	19	6	5	ne.	C. A. Creel.			
Auldurst.	Teller.	8,500	55.2	89	8	24	25	45	1.59	0.87	1.5	5	19	6	5	ne.	Mrs. Alice A. Auld.			
Bennett (near).	Arapahoe.	5,484	55.2	83	1	28	25	36	2.70	+1.04	1.00	T.	10	7	14	6	e.	J. F. Egelhoff.		
Boulder.	Boulder.	5,347	55.2	83	1	28	25	36	2.70	+1.04	1.00	T.	10	7	14	6	e.	Prof. J. A. Hunter.		
Burlington.	Kit Carson.	4,160	58.3	93	3	25	25	42	2.24	1.19	0	8	14	11	5	ne.	W. P. Davis.			
Cassels.	Park.	8,445	58.3	93	3	25	25	42	2.24	1.19	0	8	14	11	5	ne.	Harriet M. Cassell.			
Castle Rock.	Douglas.	6,220	51.4	85	2	20	20	48	2.50	+1.38	1.25	T.	8	16	2	12	s.	Thos. P. Vaughan.		
Cheesman.	Jefferson.	6,890	52.2	81	1	25	21	42	1.75	1.00	13.0	5	0	29	1	s.	J. G. Thornburg.			
Cheyenne Wells.	Cheyenne.	4,279	58.6	93	9	29	30	41	2.16	+0.81	1.25	0	6	19	5	6	sw.	J. W. Adams.		
Cope.	Washington.	15	54.4	91	8	23	25	47	1.73	+0.44	1.10	T.	2	19	8	3	nw.	Mrs. Dora M. Christopher.		
Corona.	Grand.	11,660	30.8	54	2	8	21	28	3.91	0.82	23.5	8	11	11	8	w.	U. S. Weather Bureau.			
Denver.	Denver.	5,272	54.8	88	4	30	25	40	2.01	+1.12	0.79	T.	12	11	11	8	n.	Do.		
Edgewater.	Jefferson.	5,450	55.0	87	4	25	25	44	3.06	1.03	0	8	16	7	7	w.	N. P. Levin, M. D.			
Estes Pk. Fish Hatch.	Larimer.	8,000	55.0	87	4	25	25	44	3.06	1.03	0	8	16	7	7	w.	G. H. Thomson.			
Fort Collins.	do.	4,985	55.0	87	4	25	25	44	3.06	1.03	0	8	16	7	7	w.	Colo. Agricultural College.			
Fort Lupton.	Weld.	4,907	55.1	92	3	21	25	50	2.90	+2.04	0.96	2.0	7	9	15	6	ne.	R. W. Benedict.		
Fort Morgan.	Morgan.	4,319	55.1	92	3	21	25	50	2.90	+2.04	0.96	2.0	7	9	15	6	ne.	Miss Della M. Scott.		
Frances.	Boulder.	9,300	43.4	78	4	16	25	38	3.91	1.13	27.3	12	2	23	5	w.	C. W. Barry.			
Frys Ranch.	Larimer.	7,500	45.9	76	3	15	15	43	3.36	1.25	21.5	9	13	11	6	w.	Norman W. Fry.			
Georgetown.	Clear Creek.	8,550	54.6	88	2	28	22	46	2.81	+2.04	1.12	0.5	7	18	5	7	e.	H. L. Corbett.		
Greeley.	Weld.	4,649	54.6	88	2	28	22	46	2.81	+2.04	1.12	0.5	7	18	5	7	e.	Nelson Reynolds.		
Grover (near).	do.	5,076	54.6	88	2	28	22	46	2.81	+2.04	1.12	0.5	7	18	5	7	e.	D. M. Porter.		
Hartsel.	Park.	8,892	54.6	88	2	28	22	46	2.81	+2.04	1.12	0.5	7	18	5	7	e.	Emily Kleinknecht.		
Hawthorne.	Boulder.	6,000	54.6	88	2	28	22	46	2.81	+2.04	1.12	0.5	7	18	5	7	e.	B. E. Chesebro.		
Holyoke (near).	Phillips.	3,745	52.4	94	8	14	30	55	1.93	+0.80	0.75	4.0	5	14	2	14	ne.	A. C. Canble.		
Idaho Springs.	Clear Creek.	7,543	50.0	80	4	21	15	37	1.20	-0.02	0.32	6.0	10	4	19	7	e.	J. J. Willis.		
Julesburg.	Sedgwick.	3,465	50.0	80	4	21	15	37	1.20	-0.02	0.32	6.0	10	4	19	7	e.	Gt. Western Sugar Co.		
Keota.	Weld.	4,966	50.0	80	4	21	15	37	1.20	-0.02	0.32	6.0	10	4	19	7	e.	I. S. Griffin.		
Kersey.	do.	4,571	50.0	80	4	21	15	37	1.20	-0.02	0.32	6.0	10	4	19	7	e.	Gt. Western Sugar Co.		
Laporte.	Larimer.	5,053	50.0	80	4	21	15	37	1.20	-0.02	0.32	6.0	10	4	19	7	e.	P. A. Taft.		
Leroy (near).	Logan.	4,380	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Chas. Green.			
Longmont.	Boulder.	4,950	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Gt. Western Sugar Co.			
Longs Peak (near).	Larimer.	8,600	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Enos A. Mills.			
Merino.	Logan.	7,775	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Gt. Western Sugar Co.			
Moraine.	Larimer.	5,492	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Chas. A. Chapman.			
Platte Canyon.	Jefferson.	7,750	52.9	86	2	27	21	48	2.52	1.05	2.0	9	13	8	8	ne.	Denver Union Water Co.			
Saint Cloud.	Larimer.	3,539	54.5	93	4	20	25	41	2.32	0.86	0	7	9	19	2	nw.	Homer C. Pearson.			
Sedgwick.	Sedgwick.	11,500	54.5	93	4	20	25	41	2.32	0.86	0	7	9	19	2	nw.	Edwin Lewis, M. D.			
Sill Mine.	Clear Creek.	8,700	45.2	78	6	14	15	47	2.48	1.70	18.0	4	14	12	4	sw.	Chas. F. Deininger.			
Spicer (near).	Jackson.	3,892	59.8	89	1	24	25	45	3.38	1.48	0.5	8	11	2	17	ne.	Frank W. Murphy.			
Sterling.	Logan.	5,206	59.8	89	1	24	25	45	3.38	1.48	0.5	8	11	2	17	ne.	Gt. Western Sugar Co.			
Waterdale.	Larimer.	3,512	58.3	95	8	22	25	48	1.38	+0.39	0.34	0	6	11	13	6	nw.	P. H. Boothroyd.		
Wray.	do.	4,138	58.3	95	8	22	25	48	1.38	+0.39	0.34	0	6	11	13	6	nw.	J. C. Tuomey.		
Yuma.	do.	4,138	58.3	95	8	22	25	48	1.38	+0.39	0.34	0	6	11	13	6	nw.	Matthew Harr.		
<b>Nebraska.</b>																				
Ainsworth.	Brown.	2,521	57.0	101	8	24	25	40	2.43	0.74	T.	5	8	14	8	nw.	John M. Cotton.			
Albion.	Boone.	1,747	60.6	100	7	24	30	48	2.94	0.96	0	10	10	10	7	nw.	F. M. Weltzel.			
Alliance.	Boxbutte.	3,968	51.2	87	7	18	26	48	2.00	+1.15	1.10	T.	6	12	11	7	nw.	J. A. Keegan.		
Alma.	Harlan.	1,939	61.8	100	4	21	30	50	1.46	-0.84	0.56	0	9	14	7	9	s.	W. A. Sharpnack.		
Arcadia.	Valley.	2,186	61.8	100	4	21	30	50	1.46	-0.84	0.56	0	9	14	7	9	s.	J. L. Owen.		
Arden.	Wheelock.	2	62.9	98	8	31	30	35	5.31	+2.34	0.90	0	14	15	9	6	nw.	A. E. Johns.		
Ashland.	Saunders.	1,100	62.9	98	8	31														

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Nebraska—Continued.</i>																				
Blair.	Washington.	1,122	17	62.0	- 2.7	95	7†	32	26†	38	4.21	+ 0.89	1.36	0	12	11	9	10	sw.	D. C. Van Deusen.
Bloomfield.	Knox.	6	6	59.8	—	98	8	26	30	42	1.89	—	0.75	T.	9	8	17	5	s.	Dr. L. C. Bleick.
Bradshaw.	York.	1,715	14	—	—	—	—	—	—	—	1.62	- 2.93	0.35	0	7	13	10	7	—	E. C. Roggy.
Brewster.	Blaine.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W. S. Turnbull.
Bridgeport.	Morrill.	3,658	16	53.5	- 8.2	91	4	21	25	48	1.77	+ 0.70	0.72	—	7	15	9	6	nw.	R. H. Willis.
Broken Bow.	Custer.	2,477	18	57.6	- 5.2	98	5	23	30	45	1.37	- 0.80	0.46	0	6	—	—	—	nw.	C. B. & Q. R. R. Co.
Bruning.	Thayer.	1,583	2	—	—	—	—	—	—	—	2.22	—	0.77	0	11	12	8	10	sw.	Henry Middendorf.
Burge.	Cherry.	2,674	4	54.8	—	96	7	24	29	48	—	—	—	—	—	12	4	14	n.	H. A. Davis.
Butte.	Boyd.	—	7	59.0	—	102	8	27	28	39	1.37	—	0.42	T.	8	15	5	10	nw.	W. Whitla.
Cairo.	Hall.	1,951	4	—	—	—	—	—	—	—	2.29	—	1.27	0	7	—	—	—	—	Elliott Harrison.
Callaway.	Custer.	2,555	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. H. Evans.
Carnbridge.	Furnas.	2,258	6	62.4	—	101	3†	24	30	52	2.07	—	0.55	0	9	15	1	14	n.	Chas. Jensen.
Columbus.	Platte.	1,442	20	60.7	- 3.6	97	7	29	30	42	4.33	+ 1.41	1.37	0	11	9	7	14	sw.	A. L. Rush.
Crete.	Saline.	1,368	29	63.9	- 2.4	98	1†	30	30	37	4.56	+ 1.89	0.90	0	12	12	6	12	s.	Doane College.
Culbertson.	Hitchcock.	2,565	26	60.6	- 4.9	101	8	27	25	47†	3.59	+ 2.03	1.27	T.	8	16	1	13	ne.	Homer L. Nye.
Curly.	Sioux.	—	4	48.5	—	88	3†	16	25	46†	1.95	—	1.10	—	7	—	—	—	nw.	A. E. Hann.
Curtis.	Frontier.	2,553	16	61.0	- 4.1	96	8	24	30	45	4.29	+ 1.84	1.27	0	9	12	10	8	sw.	Dr. S. R. Raze.
David City.	Butler.	1,619	25	62.0	- 1.9	97	8	32	30	35	3.52	+ 0.90	1.08	0	14	7	12	11	se.	S. Clingman.
DuBois.	Pawnee.	1,074	8	—	—	—	—	—	—	—	4.00	—	0.82	0	11	14	4	12	s.	O. M. Backus.
Dumas.	Garfield.	—	5	58.2	—	98	5†	27	30	51	2.89	—	0.56	—	17	18	3	9	n.	Emile Raes.
Elm Creek.	Buffalo.	2,268	5	—	—	—	—	—	—	—	2.37	—	1.02	0	7	—	—	—	—	E. L. Sutton.
Elsie.	Perkins.	3,382	4	—	—	—	—	—	—	—	2.80	—	1.15	0	10	—	—	—	—	J. F. Brittain.
Ericson (near).	Garfield.	2,029	21	—	—	—	—	—	—	—	2.62	+ 0.37	0.70	0	7	13	8	9	nw.	J. A. Bodyfield.
Ewing.	Holt.	1,888	22	60.0	—	105	1†	28	30	55	2.28	+ 0.14	0.62	0	11	—	—	—	—	G. H. Benson.
Exeter.	Fillmore.	1,607	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Frank Ainsworth.
Fairbury.	Jefferson.	1,316	37	64.6	- 2.7	102	9	27	30	43	3.40	+ 0.54	0.86	0	9	10	13	7	s.	W. F. Cramb.
Farmington.	Fillmore.	1,641	19	61.5	- 3.9	97	8	27	30	42	2.21	- 0.63	0.47	0	10	10	7	13	n.	C. B. & Q. R. R. Co.
Falls City.	Richardson.	898	17	65.8	- 2.8	99	9	30	30	40	7.59	+ 3.82	4.10	0	8	12	10	8	se.	Dr. J. C. Yutzy.
Fort Robinson.	Dawes.	3,764	29	50.2	- 10.4	90	3†	18	25†	47	2.14	+ 1.03	0.70	—	11	14	5	11	w.	Post Surgeon.
Franklin.	Franklin.	1,820	20	63.8	- 3.0	101	5	20	30	51	1.69	- 0.80	0.76	0	7	8	8	14	se.	A. R. Peck.
Fremont.	Dodge.	1,203	32	62.6	- 2.5	99	8	28	30	41	3.32	+ 0.47	1.11	0	11	8	10	12	se.	Ernest Hahn.
Fullerton.	Nance.	1,629	11	60.8	—	98	1	27	30	46	3.98	+ 0.28	0.93	0	8	11	11	8	nw.	Dr. F. W. Johnson.
Geneva.	Fillmore.	1,633	23	64.2	- 2.0	98	9	29	30	45	1.54	- 1.24	0.42	0	10	15	7	8	sw.	F. M. Flory.
Genoa.	Nance.	1,584	37	62.4	- 2.0	99	7†	29	30	43	3.85	+ 0.76	1.75	T.	15	14	4	12	nw.	F. W. Parsons.
Gordon.	Sheridan.	3,550	11	—	—	—	—	—	—	—	1.16	+ 0.28	0.70	—	3	—	—	—	—	G. F. Williams.
Gosper.	Gosper.	—	10	—	—	—	—	—	—	—	2.46	+ 0.03	0.91	0	9	16	4	10	nw.	E. H. Stoll.
Gothenburg.	Dawson.	2,557	19	60.2	- 4.4	98	4†	25	30	46	2.18	+ 0.11	0.90	0	6	9	9	12	nw.	Dr. W. J. Bartholomew.
Grand Island.	Hall.	1,860	21	61.4	- 3.9	100	5†	29	30	39	2.61	- 0.18	1.10	0	9	14	5	11	n.	E. A. Barnes.
Grant.	Perkins.	3,405	9	56.8	—	93	1†	23	25	45	2.37	—	1.01	T.	6	16	4	10	n.	Anson K. Holmes.
Greeley.	Greeley.	2,021	19	59.4	—	98	8	30	30	40	3.89	+ 1.79	1.55	0	11	9	14	7	nw.	W. E. Morgan.
Guide Rock.	Webster.	1,646	13	—	—	—	—	—	—	—	1.35	- 2.05	1.00	0	5	11	8	11	s.	J. S. Marsh.
Haigler.	Dundy.	3,258	19	—	—	—	—	—	—	—	1.38	+ 0.24	1.05	0	3	—	—	—	—	U. L. Pemberton.
Halsey.	Thomas.	2,695	10	57.7	- 6.5	97	8	25	25	44†	1.11	- 0.58	0.53	T.	5	6	8	16	n.	J. S. Forest Service.
Hartington.	Cedar.	1,309	22	59.4	- 1.2	98	5	30	27	39	4.04	+ 1.20	1.50	0	11	5	12	13	nw.	D. E. Ewing.
Harvard.	Clay.	1,812	23	63.2	- 3.6	103	4†	30	30	36	2.06	- 0.77	0.55	0	8	8	4	18	sw.	Bert Gregg.
Hastings.	Adams.	1,932	23	62.2	- 3.1	98	5†	28	30	46	3.23	- 0.44	1.40	0	7	11	2	17	se.	C. B. & Q. R. R. Co.
Hayes Center.	Hayes.	—	18	59.7	—	98	7	28	25	40	3.73	+ 1.77	2.25	0.2	6	14	12	4	sw.	C. A. Ready.
Hay Springs.	Sheridan.	3,821	27	52.4	- 7.2	91	4	20	25	47	2.17	+ 1.11	0.65	—	11	10	5	15	nw.	A. Kadle ek.
Hebron.	Thayer.	1,458	27	63.6	- 3.1	96	8†	26	30	39	2.71	—	0.00	1.24	0	13	—	—	—	Dr. C. M. Easton.
Hemingford.	Boxbutte.	4,256	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	A. S. Eneyart.
Hendley.	Furnas.	2,231	7	—	—	—	—	—	—	—	1.35	—	0.80	0	4	—	—	—	—	T. L. Jones.
Hershey.	Lincoln.	2,902	1	—	—	—	—	—	—	—	2.25	—	0.78	T.	6	13	6	11	—	G. F. Palmer.
Hillside.	McPherson.	3,484	4	55.6	—	92	1†	22	25	50	2.99	—	1.47	T.	10	13	10	7	nw.	Mrs. M. R. Lloyd.
Holdrege.	Phelps.	2,324	21	61.0	- 6.4	99	8	25	25	48	1.41	- 0.65	0.68	0	8	12	3	15	ne.	C. B. & Q. R. R. Co.
Hooper.	Dodge.	1,228	15	61.5	- 2.4	98	8	26	30	44	3.44	- 0.33	1.50	0	12	—	—	—	—	Dr. W. H. Heine.
Hull (near).	Banner.	—	2	—	—	—	—	—	—	—	3.19	—	1.04	7.0	6	13	4	13	nw.	Mrs. W. P. Miller.
Imperial.	Chase.	3,278	22	58.0	- 6.8	94	7	25	25	47	2.01	+ 0.63	0.41	1.5	9	11	6	13	se.	Robt. Malcolm.
Kearney.	Buffalo.	2,146	25	63.0	- 4.2	101	7†	25	30	47	1.90	- 0.83	0.61	0	9	14	8	8	s.	City Engineer.
Kimball.	Kimball.	4,697	23	53.1	- 7.7	91	7	22	24	47	2.25	+ 1.23	1.02	T.	8	11	10	9	nw.	F. J. Bellows.
Kirkwood.	Rock.	—	17	57.9	- 4.7	102	8	26	26†	43	1.41	- 0.84	0.71	—	7	13	4	13	nw.	Mrs. C. Carter.
Kowanda.	Garden.	—	4	—	—	—	—	—	—	—	2.26	—	0.80	0	11	—	—	—	—	Geo. W. Hulse.
Lamar.	Chase.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	L. R. McGaughey.
Lexington.	Dawson.	2,385	23	61.2	- 2.7	99	8	25	30	52	1.42	- 0.62	0.65	0	6	21	0	9	nw.	Robt. Chadwick.
Lincoln.	Lancaster.	1,189	31	63.4	- 1.8	99	8	33	30	33	3.04	+ 0.40	0.85	0	14	10	6	14	s.	U. S. Weather Bureau.
Lodgepole.	Cheyenne.	3,820	16	55.2	- 5.8	95	1	22	25	47	2.38	+ 1.16	0.92	T.	7	10	13	7	nw.	R. T. Kidney.
Loup City.	Sherman.	2,067	18	60.0	- 3.9	100	8	25	30	43	2.77	- 0.16	1.30	0	7	19	8	3	ne.	Harriet Hayhurst.
Loyal.	Custer.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	C. H. Cass.
McCook.	Redwillow.	2,506	16	62.4	- 4.3	99	5	22	30	48†	2.13	+ 0.30	0.70	0	5	—	—	—	nw.	C. C. Cogizer.
McCool Junction.	York.	1,575	16	—	—	—	—	—	—	—	1.47	- 2.12	0.38	0	7	—	—	—	—	L. L. Slagel.
Madison.	Madison.	1,585	19	60.0	- 3.5	94	5†	31	20†	39†	4.99	+ 1.95	1.55	0	8	10	5	15	se.	Dr. F. A. Long.
Marquette.	Hamilton.	1,830	33	—	—	—	—	—	—	—	2.25	- 0.34	0.80	0	13	—	—	—	—	John Ellis.
Mary.	Brown.	—	2	—	—	—	—	—	—	—	1.45	—	0.71	—	8	15	7	8	nw.	G. C. Stuft.
Mason City.	Custer.	2,257	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. A. Amsberry.
Minatare.	Scotts Bluff.																			

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Nebraska—Continued.</b>																				
Santee.....	Knox.....	2,339	25	63.6	- 1.6	101	8	34 <sup>b</sup>	25 <sup>†</sup>	36 <sup>b</sup>	1.28	- 0.89	0.67	0	8	15	3	12	nw.	Geo. MacGregor.
Sargent.....	Custer.....	1,357	20	61.9	.....	102	7 <sup>†</sup>	25	30	43	3.40	+ 0.91	1.04	0	9	15	7	8	n.	J. L. Ferguson.
Schuyler.....	Colfax.....	3,888	6	53.8	.....	102	7 <sup>†</sup>	25	30	43	2.93	.....	1.67	0.6	12	11	10	9	n.	R. O. Brownell.
Scottsbluff.....	Scotts Bluff.....	1,435	23	63.4	- 3.4	96	7 <sup>†</sup>	34	25	37	4.14	+ 0.79	1.15	0	11	15	6	9	se.	A. B. McCoskey.
Seward.....	Seward.....	4,090	20	.....	.....	.....	.....	.....	.....	.....	2.98	+ 1.84	1.13	1.0	9	20	3	7	ne.	C. B. & Q. R. R. Co.
Sidney.....	Cheyenne.....	1,052	1	.....	.....	.....	.....	.....	.....	.....	5.28	.....	1.53	0	14	11	6	13	nw.	John P. Fischer.
Springfield.....	Sarpy.....	22	57.2	- 6.0	95	7	25	25	45	1.08	- 0.29	0.61	.....	T.	8	12	8	10	nw.	L. A. Bates.
Springview.....	Keyapaha.....	1,472	21	61.4	- 2.6	97	8	29	30	39	3.80	+ 0.83	1.22	0	6	9	18	3	s.	C. L. Phelps.
Stanton.....	Stanton.....	2,804	17	.....	.....	.....	.....	.....	.....	.....	1.76	+ 0.01	0.50	0	7	.....	.....	.....	.....	Miss Stella Vennum.
Stratton.....	Hitchcock.....	1,574	28	.....	.....	.....	.....	.....	.....	.....	0.95	- 1.48	0.45	0	4	.....	.....	.....	.....	Alfred Pont.
Superior.....	Nuckolls.....	1,059	20	64.5	- 2.6	99	7 <sup>†</sup>	27	30	41	3.92	+ 0.23	1.00	0	12	13	9	8	se.	F. V. Bishop.
Syracuse.....	Otoe.....	1,023	23	.....	.....	.....	.....	.....	.....	.....	3.83	+ 0.42	0.90	0	12	15	10	5	s.	W. N. Hunter.
Table Rock.....	Pawnee.....	1,113	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	12	15	10	5	s.	E. D. Howe.
Tecumseh.....	Johnson.....	1,060	23	61.5	- 3.9	95	1 <sup>†</sup>	30	26 <sup>†</sup>	40	5.97	+ 3.10	2.13	0	13	9	6	15	se.	L. E. Pratt.
Tekamah.....	Burt.....	29	63.5	- 3.9	99	8	30	30	36	3.81	+ 1.05	1.08	.....	0	14	10	9	11	se.	Dr. A. D. Nesbit.
University Farm.....	Lancaster.....	2,613	24	55.1	- 7.2	95	7	27	25	43	1.43	- 0.36	0.65	T.	8	15	7	8	nw.	S. W. Perin.
Valentine.....	Cherry.....	1,187	10	.....	.....	.....	.....	.....	.....	.....	4.43	+ 0.22	1.49	0	10	12	14	4	.....	U. S. Weather Bureau.
Wahoo.....	Saunders.....	1,387	19	59.8	- 3.8	96	5 <sup>†</sup>	27	30	40	3.83	+ 0.68	1.31	0	10	12	8	10	s.	W. T. Mauck.
Wakefield.....	Dixon.....	.....	61.6 <sup>e</sup>	.....	.....	104	7	28	27	39 <sup>e</sup>	.....	.....	.....	0	10	12	8	10	s.	I. H. Weaver.
Walthill.....	Thurston.....	2,299	7	.....	.....	.....	.....	.....	.....	.....	2.47	.....	1.15	0	5	10	19	1	n.	E. W. Rossiter.
Watertown.....	Buffalo.....	2,935	15	.....	.....	.....	.....	.....	.....	.....	2.61	+ 0.72	0.74	0	6	.....	.....	.....	.....	R. E. Swift.
Wauneta.....	Chase.....	1,080	34	62.4	.....	100	1	27	30	42 <sup>a</sup>	6.07	+ 2.97	1.12	0	14	11	10	9	.....	C. D. Fuller.
Weeping Water.....	Cass.....	1,313	24	64.1	- 1.6	98	7	30	30	45	4.32	+ 1.31	1.25	0	6	20	8	2	sw.	S. W. Orton.
Wespoint.....	Cumming.....	1,380	17	.....	.....	.....	.....	.....	.....	.....	5.02	+ 0.97	1.84	0	9	22	2	6	.....	J. C. Elliott.
Wisner.....	do.....	1,633	22	63.9	- 3.0	100	5 <sup>†</sup>	26	30	44	0.92	- 2.08	0.18	0	10	12	10	8	sw.	F. C. Evans.
York.....	York.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	10	12	10	8	sw.	A. T. Glauque.
<b>Iowa.</b>																				
Afton.....	Union.....	1,212	18	61.7	- 3.4	91	1	32	26	28	6.02	+ 2.37	2.67	0	9	9	10	11	sw.	N. W. Rowell.
Allerton.....	Wayne.....	10	65.0	- 0.3	101	9	30	26	35	2.29	- 2.42	0.85	.....	0	6	17	3	10	sw.	Mrs. Geo. Shriver.
Alton.....	Sioux.....	1,305	7	59.9	.....	94	8	28	30	36	2.36	.....	0.51	0	10	5	18	7	se.	W. S. Slagle.
Atlantic.....	Cass.....	1,164	21	61.8	- 2.6	94	1 <sup>†</sup>	30	26 <sup>†</sup>	34	6.05	+ 2.56	1.91	0	15	8	7	15	sw.	Thos. H. Whitney.
Audubon.....	Audubon.....	1,301	18	60.2	- 3.0	90	1	32	26 <sup>†</sup>	30	10.12	+ 6.99	2.25	0	15	9	3	18	se.	Geo. E. Kellogg.
Bedford.....	Taylor.....	12	62.8	- 1.8	99	8	24	26 <sup>†</sup>	47	4.43	+ 0.99	1.13	.....	0	12	14	5	11	s.	E. E. Healy.
Centerville.....	Appanoose.....	2	65.2	.....	102	8	30	26	34	0.28	.....	0.07	.....	0	7	22	1	7	nw.	Gordon Peacock, jr.
Chariton.....	Lucas.....	1,042	17	62.6	- 2.9	98	9	27	26	39	2.50	- 0.94	0.55	0	6	13	7	10	ne.	C. C. Burr.
Clarinda.....	Page.....	1,009	22	62.0	- 4.2	97	8	28	30	42	4.14	+ 1.45	1.19	0	12	10	8	12	s.	A. S. Van Sandt.
Corning.....	Adams.....	1,117	20	61.6	- 3.2	94	9	26	26	34	4.77	+ 1.81	1.52	0	8	.....	.....	.....	sw.	Jerome Smith.
Corydon.....	Wayne.....	1,101	19	65.0	- 1.5	101	9	30	26	35	2.76	- 0.83	0.58	0	13	9	5	16	sw.	May C. Miller.
Council Bluffs.....	Pottawattamie.....	2	63.0	.....	96	1	26	30	44	7.91	.....	1.88	.....	0	15	11	3	16	se.	B. W. Crossley.
Creston.....	Union.....	1,312	7	61.2	.....	94	9	29	26	35	6.04	.....	1.84	0	14	12	4	14	s.	O. J. Colby.
Cumberland.....	Cass.....	13	.....	.....	.....	.....	.....	.....	.....	.....	4.94	+ 1.30	1.57	0	10	20	2	8	sw.	J. H. Reppert.
Denison.....	Crawford.....	1,180	18	62.2	- 1.5	92	8	29	30	32 <sup>a</sup>	6.04	+ 3.04	1.49	0	12	10	10	10	s.	W. C. Van Ness.
Elliot.....	Montgomery.....	7	62.8	.....	94	1	30	30	36	2.53	.....	0.69	.....	0	10	9	12	9	s.	C. H. Westrope.
Greenfield.....	Adair.....	20	61.0	- 3.9	91	8	30	26 <sup>†</sup>	32	4.72	+ 1.31	1.77	.....	0	16	7	16	7	nw.	R. B. Oldham.
Harlan.....	Shelby.....	1,182	13	60.4	- 2.6	93	1	29	26 <sup>†</sup>	34	8.86	+ 5.15	3.56	0	14	7	9	14	sw.	C. A. Reynolds.
Inwood.....	Lyon.....	1,474	8	61.0	.....	96	8	28	27	46	1.37	.....	0.60	0	11	16	4	10	s.	F. B. Hanson.
Lake Park.....	Dickinson.....	1,479	.....	60.1	.....	94	5 <sup>†</sup>	29	26 <sup>†</sup>	40	2.20	.....	1.10	0	6	17	5	8	nw.	A. E. Woodruff.
Lamoni.....	Decatur.....	1,120	5	62.7	.....	94	9	29	26	33	3.25	.....	1.04	0	11	14	0	16	se.	T. J. Fitzpatrick.
Larrabee.....	Cherokee.....	1,266	22	59.6	- 3.2	94	4 <sup>†</sup>	25	30	36	3.19	- 0.23	0.67	0	9	12	12	6	se.	R. C. Carnahan.
Le Mars.....	Plymouth.....	1,224	16	59.4	- 3.1	90	5	29	27	32	3.81	+ 0.03	1.44	0	11	11	12	7	se.	G. A. C. Clarke.
Lenox.....	Taylor.....	1,250	17	62.0	- 0.3	92	9	29	26	31	4.79	+ 1.46	1.05	0	13	18	2	10	s.	J. L. Hurley.
Leon.....	Decatur.....	1,120	10	64.0	- 0.8	94	9	30	26	30	3.60	- 1.20	1.45	0	8	9	11	10	s.	Morris Gardner.
Little Sioux.....	Harrison.....	7	62.4	.....	94	1	30	26 <sup>†</sup>	35	7.04	.....	2.65	.....	0	12	9	7	14	w.	Geo. H. Gibson.
Logan.....	do.....	45	61.6	- 2.5	93	8	30	26 <sup>†</sup>	35	7.31	+ 4.06	3.04	.....	0	10	6	17	7	s.	Glenn H. Stern.
Mount Ayr.....	Ringgold.....	1,236	19	63.5	- 3.2	96	9	30	26	33	3.67	+ 0.14	0.92	0	10	13	9	8	s.	Alex Maxwell.
Murray.....	Clarke.....	21	62.9	- 3.5	97	9	30	26	36	4.79	+ 1.30	1.41	.....	0	12	.....	.....	.....	.....	N. T. Ashley.
Northboro.....	Page.....	.....	63.4	.....	95	1 <sup>†</sup>	30	26	38	3.90	.....	1.23	.....	0	10	9	8	13	se.	J. M. Darby.
Odebolt.....	Sac.....	15	61.4	- 2.1	95	9	30	27	36	3.92	+ 0.17	1.10	.....	0	10	15	6	9	.....	E. Starnes.
Onawa.....	Monona.....	1,051	12	62.8	- 2.4	93	5 <sup>†</sup>	32	30	33	3.47	- 1.33	0.90	0	14	13	12	5	s.	C. G. Perkins.
Pacific Junction.....	Mills.....	960	13	61.4	- 3.1	96	1	27	30	37	5.75	+ 2.29	1.48	0	11	7	19	4	n.	H. H. McCartney.
Rock Rapids.....	Lyon.....	1,358	13	57.6	- 5.4	96	8	30	27 <sup>†</sup>	39	2.10	- 0.41	1.08	0	5	15	10	5	n.	W. C. Wyckoff.
Sheldon.....	O'Brien.....	1,422	12	59.5	- 2.0	95	8	28	30	40	2.13	- 1.56	1.01	0	8	15	7	8	nw.	Geo. Aupperle.
Sibley.....	Osceola.....	1,212	19	57.6	- 3.1	93	8	29	26 <sup>†</sup>	37	2.28	- 1.09	1.10	0	13	16	5	9	s.	H. G. Doolittle.
Sioux Center.....	Sioux.....	13	59.2	- 2.1	92	5 <sup>†</sup>	30	27 <sup>†</sup>	36	1.83	- 1.85	0.62	.....	0	6	13	8	9	nw.	J. de Ruyter.
Spencer.....	Woodbury.....	1,135	23	60.3	- 3.8	93	8	33	27	31	3.57	+ 1.10	1.21	0	12	11	12	7	sw.	U. S. Weather Bureau.
Thurman.....	Clay.....	2	61.0	.....	97	5 <sup>†</sup>	29	26	38	2.54	.....	0.80	.....	0	7	.....	.....	.....	.....	S. Gillespie.
Washita.....	Fremont.....	15	62.9	- 2.9	96	1	28	30	38	7.71	+ 2.92	2.81	.....	0	12	5	12	13	ne.	C. R. Paul.
.....	Cherokee.....	1,157	14	61.3	- 2.8	93	7 <sup>†</sup>	25	27	39	3.83	+ 0.05	0.84	0	11	14	10	6	s.	H. L. Felter.
<b>Kansas.</b>																				
Abilene.....	Dickinson.....	1,157	17	.....	.....	.....	.....	.....	.....	.....	2.18	- 0.63	1.02	0	5	11	11	8	s.	T. W. Sherman.
Agricultural College.....	Riley.....	1,100	54	67.2	- 1.0															

TABLE 1.—Climatological data for September, 1912. District No. 6—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<b>Kansas—Continued.</b>																			
Gove.	Gove.	2,750	23																Jesse Royer.
Hanover.	Washington.	1,225	15	65.9		105	9	28	30	38	2.82	-0.23	0.98	0	10	15	6	9	A. Jaedicke, Jr.
Harrison.	Jewell.	1,804	11	63.9	-2.7	98	8	22	30	45	0.94	-2.34	0.37	0	6	20	4	6	Mahlon Tegley.
Hays.	Ellis.	2,000	44	65.1	-3.2	100	3†	25	30	43	1.85	-0.56	0.60	0	7	15	4	11	G. K. Helder.
Hill City.	Graham.	2,134	4	65.2		100	1†	26	30	48	0.49		0.25	0	4	13	9	8	C. A. G. Inlow.
Horton.	Brown.	1,188	23	64.5	-3.7	99	1	33	30	39	5.46	+1.90	2.57	0	12	13	3	14	Mrs. S. C. Belden.
Hoxie.	Sheridan.	2,700	14	63.5	-3.4	98	1†	26	30	42	1.17	-1.06	0.41	0	5	8	15	7	I. L. Vinson.
Lawrence.	Douglas.	997	44	66.8	-0.3	97	9	34	30	35	4.21	+0.52	1.48	0	7	16	4	10	Prof. H. P. Cady.
Leavenworth.	Leavenworth.	913	68	66.4	-1.0	98	9†	32	25	32	3.44	+0.14	1.32	0	9	18	3	9	Dr. A. F. Yohe.
Lebanon.	Smith.	1,812	14								0.67	-2.02	0.30	0	4	17	1	12	E. V. Bower.
Leoti.	Wichita.	3,300	9	62.44		98	8	25	5	48	1.31		0.67	0	8	17	4	9	L. E. Gorsuch.
Lincoln.	Lincoln.	1,374		66.6		101	1†	26	30	47	1.83		0.80	0	7	14	7	9	R. W. Greene.
Lindsborg.	McPherson.	1,333	6																A. J. Fredrickson.
McCracken.	Rush.	2,139		65.4		100	3	27	30	42	2.12		0.60	0	5	15	8	7	E. D. Floyd.
Minneapolis.	Ottawa.	1,259	22	66.3	-2.6	100	9	28	30	41	2.81	+0.23	1.11	0	8	16	4	10	J. L. Steele.
Moran.	Allen.	1,098	16	69.2	-0.9	102	10	33	30	38	2.86	-1.32	1.10	0	5	14	9	7	C. J. Norton.
Natoma.	Osborne.	1,834	3																C. O. Hunt.
Norton.	Norton.	2,284	14	62.5	-4.1	98	8	26	30	45	1.14	-1.15	0.36	0	7	18	5	7	Sim Steffel.
Oberlin.	Decatur.	2,539	25								2.08	+0.28	0.60	0	7	19	6	5	I. K. Huber.
Oketo.	Marshall.	1,194	4	65.3		100	8†	28	30	38	3.29		0.93	0	10	5	14	11	J. A. Church.
Olathe.	Johnson.	1,032	17	66.6	-2.2	98	8	31	30	36	3.31	-0.09	1.15	0	6	13	8	9	Dr. S. B. S. Wilson.
Ottawa.	Franklin.	926	18	67.5	-1.1	99	1†	31	26†	40	2.95	-0.85	1.26	0	8	18	5	7	W. J. Sheldon.
Phillipsburg.	Phillips.	1,939	21	65.2	-2.2	103	1	25	30	51	1.15	-1.62	0.45	0	6	13	11	6	N. E. Bailey.
Plainville.	Rooks.	2,156	6								0.50		0.15	0	4	20	1	9	P. D. Spellman.
Pleasanton.	Linn.	862	10	69.0	-1.5	102	7	31	26†	38	2.88	-0.86	1.06	0	4	17	5	8	B. F. Blaker.
Quenemo.	Osage.	941									5.13		2.15	0	7	17	6	7	R. L. Graham.
Republic.	Republic.	1,495	9	63.7		98	8	22	30	47	1.56		0.33	0	11				J. W. Ambrose.
Russell.	Russell.	1,834	13	66.3	-2.1	100	1†	27	30	44	1.21	-1.38	0.42	0	5	15	5	10	Robert Brebner.
Russell Springs.	Logan.		2	63.0		99	4	24	30	47	1.43		0.60	0	5	14	9	7	Murray Wallace.
St. Francis.	Cheyenne.	3,288	4	59.7		97	8	24	25	49	2.26		0.62	T.	7	10	10	10	J. E. Uplinger.
Salina.	Saline.	1,227	28	66.0	-4.1	100	8	28	30	38	1.34	-0.98	0.58	0	6	12	6	7	Prof. A. W. Jones.
Scott.	Scott.	2,971	6	64.0		97	7†	30	25	47	0.58		0.37	0	5	16	9	5	J. B. Loughran.
Smith Center.	Smith.	1,800	2	66.3		100	6	24	30	50	1.02		0.39	0	7	15	6	9	W. H. Nelson.
Topeka.	Shawnee.	997	26	66.9	-1.4	98	1	34	30	33	3.98	+0.42	1.29	0	8	14	9	7	U. S. Weather Bureau.
Tribune.	Greeley.	3,612	13								1.84	+0.89	1.10	0	5	7	12	11	Charles E. Cassel.
Valley Falls.	Jefferson.	913	13	65.2	-2.3	100	1	27	26	41	2.32	-1.76	0.70	0	9	17	6	7	Miss Nettie Maxwell.
Vinland.	Douglas.	880	3								4.20		1.47	0	6				A. Schick.
Wakeney.	Trego.	2,456	29	65.5	-3.3	99	1†	27	30	43	0.56	-1.44	0.18	0	7	15	6	9	A. S. Peacock.
Wallace.	Wallace.	3,303	42																M. T. Griggs.
Wamego.	Pottawatomie.	1,002	19								4.15	+0.69	1.85	0	7	11	8	11	M. L. Stone.
<b>Missouri.</b>																			
Amoret.	Bates.	850	4	68.5		101	7	33	26†	37	3.00		1.25	0	5	15	5	7	Darby Fruit Farm.
Appleton City.	St. Clair.	853	23	68.2	-2.7	102	7	33	26	42	2.48	-1.01	0.76	0	6	12	11	7	T. C. Brown.
Arthur.	Vernon.	767	20	67.8	-1.6	102	6†	28	30	44	1.59	-2.47	0.80	0	5	17	7	6	J. T. Armstrong.
Avalon.	Livingston.		27	67.6	-1.4	102	8	31	26	37	2.05	-3.59	0.70	0	6	20	4	6	F. G. Ashbaugh.
Bethany.	Harrison.	881	22	67.4	+1.0	95	7	29	26	44	3.95	+0.31	1.51	0	6	16	6	8	W. H. Skinner.
Bollivar.	Polk.	1,070	25	70.0	-0.4	105	7†	34	30	43	5.52	+2.05	2.75	0	6	20	4	6	A. C. Fink.
Boonville.	Cooper.	600	37								3.08	-1.32	1.15	0	7	17	2	11	C. Randecker.
Brunswick.	Chariton.	652	34	66.8	-1.4	99	8	32	30	38	1.57	-2.42	0.86	0	5	14	2	14	Louis Benecke.
Clinton.	Henry.	800	24	69.6		103	7†	31	26	43	1.61	-1.80	0.43	0	5	18	7	5	A. E. Derwent, M. D.
Columbia.	Boone.	784	24	67.7	-0.1	98	8	32	30	32	3.55	+0.70	1.75	0	9	13	4	13	U. S. Weather Bureau.
Crocker.	Pulaski.	1,300	2	68.5		99	6	35	24	37	5.19		1.84	0	6	18	3	7	Ira H. Stephens.
Eldon.	Miller.		1	70.2		102	7†	35	26	37	2.71		1.00	0	7	19	5	6	G. M. Tinsley, M. D.
Eldorado Springs.	Cedar.	750	8	68.6		104	8	29	21	44	2.50		0.96	0	4	12	7	11	Samuel Graham.
Fayette.	Howard.	725	30	67.5	-1.3	97	8†	33	26	36	2.29	-2.21	1.05	0	6	21	1	8	Prof. T. B. Smith.
Fulton.	Callaway.	818	22	69.0	-0.2	102	8	32	30	38	2.45	-1.67	0.91	0	5	14	6	9	Russel Johnston.
Glasgow.	Howard.	618	35								0.76	-3.21	0.48	0	4	16	3	11	J. J. Shaughnessy.
Grant City.	Worth.	1,130	21	64.9	-2.1	100	9	32	26	36	3.79	0	1.28	0	9	15	1	14	W. H. Campbell.
Harrisonville.	Cass.	912	41	67.4	-0.9	101	9	33	26	39	1.93	-2.30	0.50	0	7	17	0	13	A. J. Sharp.
Hazelhurst.	Livingston.		20								1.29	-2.73	0.43	0	6				W. H. Baker.
Hermann.	Gasconade.	482	39								4.22	+0.44	2.38	0	6	15	5	10	C. T. Maushund.
Houston.	Texas.	1,280	21	68.0	-0.9	99	7	34	27	38	5.49	+1.57	3.61	0	6	13	15	2	E. Dempsey.
Jefferson City.	Cole.	628	31	66.0	-3.0	101	7	32	30	39	2.18	-0.74	1.45	0	6	21	0	9	Miss Emma Swift.
Kansas City.	Jackson.	963	25	67.4	-0.1	97	8	39	30	30	1.99	-1.77	0.68	0	7	14	7	9	U. S. Weather Bureau.
Kidder.	Caldwell.	1,017	23	65.6	-1.9	98	8†	34	26†	31	2.62	-1.34	0.70	0	10	17	6	7	J. F. Sharp.
Lamonte.	Pettis.	863	24	70.6		100	8	27	26	53	1.37	-2.88	0.76	0	3	15	4	7	J. Ed. Hall.
Lebanon.	Laclede.	1,265	25	68.4	-1.6	97	8	35	26†	29	2.62	-1.21	1.10	0	5	21	4	5	M. W. Serl.
Lexington.	Lafayette.	813	31	68.0	-0.3	100	8	28	26	38	1.08	-3.38	0.34	0	6	14	0	16	J. W. Keithley.
Liberty.	Clay.	864	25	67.4	-1.7	100	7	32	26†	38	1.56	-2.17	0.61	0	4	13	9	8	W. C. Wilcott.
Lockwood.	Dade.	1,088																	C. S. Crow.
Marshall.	Saline.	779	23	66.8	-1.8	99	8	30	26	41	1.19	-3.36	0.27	0	6	19	5	6	Prof. W. H. Black.
Maryville.	Nodaway.	1,160	23	64.4	-1.5	97	9†	31	26	33	4.35	+0.79	1.41	0	10	14	1	15	J. R. Brink.
Mount Vernon.	Lawrence.	1,480	36	70.0	-1.7	101	7†	35	25	39	2.67	-0.85	1.12	0	4	23	2	5	J. R. White & Son.
Nevada.	Vernon.	860	19								1.43	-2.93	0.59	0	5	16	8	6	C. Jewell.
Oregon.	Holt.	1,113	58	65.2	-1.8	97	1	33	30	30	4.66	+1.19	2.58	0	10	17	4	9	Tom Curry.
Pattonsburg.	Davies.																		Wm. Burton.
Rolla.	Phelps.	1,139	32	69.0	+1.7	97	7†	38	26†	33	5.32	+1.52	1.89	0	8	21	2	7	Prof. P. J. Wilkins.
St. Charles.	St. Charles.	614	35	70.6	+4.2	100	8†	36	30	33	2.82	+0.11	1.72	0	5	20	3	7	L. C. Saeger.
St. Joseph.	Buchanan.	967	41	66.5		98	9	32	26	32	3.43	+0.35	1.59	0	9	14	6	10	U. S. Weather Bureau.
St. Louis (1).																			

TABLE 2.—Daily precipitation for September, 1912. District No. 6, Missouri Valley.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Wyoming.</b>																																	
Arapahoe	Bighorn									.90	.70			.80	T.		.20			.30	T.		T.		.75							3.65	
Barnum	Powder																																
Basin	Bighorn																																
Bennett	North Platte																																
Big Creek Station	do.																																
Burns	South Platte									1.05	.02		.25	.30	.38						.02		.03		.32				.12	.03		2.52	
Casper	North Platte																																
Centennial	do.									.70	.15	.04		.05	1.45	.05				T.	.21	.07	.02	T.	.10	.01		T.	T.	T.	T.	2.85	
Cheyenne	South Platte	T.		.02						1.46	.10	T.	.86	.29	.60	.06					.07	T.			.26		T.	T.	.09	.10		3.91	
Chugwater	North Platte									1.66					.30	.41					.28											2.37	
Clark	Yellowstone			T.	.18					.23	.08	.03		.23	.04	.27					.07			.77	.02			.09				2.01	
Cody	Bighorn				.05			.03		.07	.06			.30	.41									.38				.15	T.			1.45	
Crazy Creek	Yellowstone	.73	.02		.04	.05				.05	.02	.20	.05	.10	.16						.01			.20	.01		.10	.10	.20	.10		1.59	
Dome Lake	Tongue													.90	.70	.50				.60	.60					.20	.10	.10	.20	.10		4.05	
Douglas	North Platte																																
Dubois	Bighorn	.05		T.					.22	.28	.15			.33	.97	.31				.42	.27			.30	.10			.67	.11			1.43	
Eaton's Ranch	Tongue																							.43	.32							4.23	
Echeta	Powder									.10	1.00		T.	.12	.88	T.				.50	.28			.10	.12							3.30	
Elk Mountain	North Platte									1.17						.45						.15			.53								2.30
Encampment	do.				.02					.50	.10	.01		T.			.55							T.	.10							1.28	
Erway	Powder				.08					.90	.85	.30	.10	.45	.60	.03				.35	T.				.55					.05	T.	4.26	
Fort Laramie	North Platte									T.	1.84				.20	.30					.03				.39	.08							2.84
Foxpark	do.																																
Germania	Bighorn								.27	.03	.47	.02	T.	.12	.05	.11	.01			.06	T.			.03				.08	.21			1.46	
Gillette	Powder									.17	.70		.05	.05	.05	.34				.30	.05			.32	.15							2.30	
Horse Creek	Bighorn			T.	T.				.24	.18	.16	.08		.18	T.	.03																	
Hunters Station	Powder			T.	.18				.87	.74			.08	.25	.12	.18				.18				.16	.14			.12	.22	.18		3.42	
Hyattville	Bighorn								.50	.50			.02	.02						.04			.02	.02	.04								
Jireh	Niobrara			.15	.05				.02	.30	1.71			.21	.10	.12	.03				.37	.05		.08	.30		.02	.09	.03			3.61	
Kirtley	do.										1.34		.03		.31	.20	.03			.28			.12	.31					.20	.03		2.85	
Kirwin	Bighorn					.30			.60	.20	.35	T.		.50	1.00	.50				.30			.10	.70	.20		.10	.10				4.95	
Knowles	Cheyenne									.54				T.	.43	.52	.47		.06		T.	.11		.37	.58					.14		3.22	
Lagrange	North Platte								1.26	1.26	.02	.13			.82	.34				.06	.15			.20						.06		4.30	
Lander	Bighorn				.02				.09	.85	.27	T.	T.	.42	.67	.11				.37	T.			.24	.84				T.	T.	T.	3.88	
Laramie	North Platte			T.	.03					1.48	.27			.08	.50						.45			.06	.04							2.64	
Leo	do.																															1.11	
Lolabama Ranch	Yellowstone										.21	.15		.40	.20									.15								2.13	
Lovell	Bighorn				.25				.20		.20			.30	.10	.26	.20			.22	.06				.07			.27					
Lusk	Niobrara																																
Manville	do.			.17						.28	1.12			.22	.07	.10	.05			.31	.01			.06	.24			.18		.07		2.88	
Moorcroft	Cheyenne									T.	.50		.10		.02	.16	.06			.18		.12		.50			.11					1.75	
Moore	North Platte								T.	.65	1.15	.02		.10	.50	.60				.07	T.			.21	.25		.01	T.	.10			3.45	
Newcastle	Cheyenne			T.	.06					.15	1.31	T.		T.	.32	.07	.01				T.	.30		.21	.05			.06				2.14	
Pathfinder	North Platte								T.	.56	.50		T.	.32	.07	.01	.10				.08	.04		.19	.37							2.15	
Pinebluff	South Platte	T.	.03	T.	T.					1.60	T.	.04	.28	.36	.38	T.	.10				.12	T.		.37			.28			.23	T.	3.42	
Pine Ridge	Cheyenne									.54				T.	.49	.09								.47								1.96	
Powell	Bighorn								.66		.43			.10		.30				.06				.24	.01							1.80	
Rawlins	North Platte				.10					.50	.25	.04		T.	.90	.10				T.	.04			T.	.32							2.25	
Riverton	Bighorn								.94	.62				.52		.20				T.				1.04								3.32	
Rocky point	Powder								.06	.39			T.		.31	.28	.39			.18	.05	.59		.60	.20		.08	.10	.05			3.28	
Saratoga	North Platte					T.				.08	.08									.02				.04	.25							0.47	
Seven-Mile Creek	do.													1.93	.10					.02				.04	.25							2.85	
Sheridan	Tongue	T.			T.	.15			.01	.15	.32	T.	.01	.38	.70	.23				.08	.26			.58	.13	T.	.01	.07	.02			3.79	
Shoshone Dam	Bighorn			.41					.09	T.	.27	.01	.02	.38	.58	.40								.27			.02	.08				2.61	
Soldiers Home	Powder																																
South Pass City	North Platte			.09	.20				.12	.05			.04	.09	.10									.07	.16			.10				0.92	
Sundance	Cheyenne									.50	.20	.20		.35	.03	.34	.05				.23	.20	.25		.40	.20		.10				2.70	
Thermopolis	Bighorn				.40				.07	.65	.78	.01		T.	.11	.10	.06							.04	.32			.09	.13			3.49	
Thornton	Cheyenne									.62				T.	.11	.10	.06			.16	.03	.03		.21	.15			.06	T.			1.53	
Ulm	Tongue			.05	.02				.11		.97					1.01								.80	.50	T.		.05				3.51	
Verona	do.			.03						.70			.39	.42	.80	.02				.78	.08			.55	.01		.04					3.82	
Wheatland	North Platte			.15	.05					.02	.24	.06	T.		.44	.42	T.							.34	.04							3.76	
Wiant's Ranch	do.									.50	.11			.01	.20									.40								1.22	
Wiley	Bighorn																																
Woodrock	Tongue	T.			.04	.45			.27	.40	.20		T.	.75	1.10	.35			.12	.56	.76			.30	.06	.20	.07	.17	.09			5.99	
Worland	Bighorn				.13				.02	.25	.57	</																					

TABLE 2.—Daily precipitation for September, 1912. District No. 6—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Montana—Contd.</i>																																	
Chester	Marias			.03	.45	.03		.04											.37				.18									1.10	
Chinook	Milk		T.	.06	.03	.15			.07						.01					.06				.68	.06			.14				1.26	
Clemons	Missouri		T.	.09	1.30	.11	T.							.55	.09					.34	.14			.20	.04	.01	.21	T.	T.			3.08	
Clydepark	Yellowstone		.10	T.	.07								.27								.15			.30	.04							1.07	
Crow Agency	Big Horn		.03			.40			.06					.16	.51	.79	.02				.45	.49	.08	.40	.16		.04	.06				3.65	
Cut Bank	Marias				.02																		.32	.40								2.42	
Denton	Missouri		.05	.06	.23	.06								T.	.28					.56	.02			.28	.06	T.	T.	.12				1.72	
Dillon	Jefferson			.09	.22	.09								.11	.12					.02			.08	.06	.02			.05				0.86	
Dry Creek	Missouri		T.	.15	.18	.04			.01					.46					.02	.50		.30	.30	.01		.10	.01					2.08	
Dry Wolf Camp	do			.08	.18	.12								.40	.25					.43	.03		.30	.12	.03	.14		T.				1.78	
Dunkirk	Marias				.16	.43	.08						T.							.35			.15	.51				T.				1.68	
East Gallatin River	Gallatin		.10			.19				.05		T.		.48	.05					.15	.27			.80	.18			.05				2.32	
Ekalaka	Little Missouri													.07	.25	.44	.32			.11	.20	.12		.37	.25							2.13	
Elkhorn	Jefferson		T.	.05	.50	.60								.31	.20	T.				.15	.12			.21	.02	.03	T.	.02	.02			2.23	
Fallon	Yellowstone													T.	.38	.28				.09	.06	T.										0.81	
Findon	Missouri		T.	.02	.07	.86	.11		T.					.20	.46	.02				.04	.20		.02	.21	.09	.02	.02	.03				2.37	
Fish Creek	Jefferson				.50	.38			T.						.40					.15	.20			.16	.36	.03	.01		.06	.16		2.65	
Flathead Creek	Yellowstone			.12	.14	.12	T.		T.					.52	*	.32				.10	.30			.36	.03							2.18	
Forsyth	do					.48			T.					T.	.14	.93				.13	.58			.35		.24		T.				2.85	
Fort Benton	Missouri		.70	.20	.15																		.16	.10								1.31	
Fort Shaw	do		.03		.75	.02	T.							.07	.04					.12	.22		.04	.14	.03	T.	.08	T.	T.			1.54	
Glasgow	Milk					T.	.75													.15	.15	T.		.16								1.06	
Glendive	Yellowstone					.17								T.	.10	.35	.15	T.		.05	.15	.03	T.		T.	T.		.10				1.10	
Gold Butte	Marias			.08	.44	.04		.75	.14	.02				T.						.35	.10		.19	.30		T.						2.44	
Graham	Powder					T.				.09	.28				.30	.50	.29			.23	.03	.25		.84	.20		.03	.11	.02			3.17	
Grayling	Madison											.20	T.		.07	.03				T.	T.		T.	.17								0.47	
Great Falls	Missouri		T.	.06	.65	.66			T.						.08					.19	.17		T.	.23	.02		.04		T.			2.10	
Halfway House	do			.10	.20	T.								.35						T.			.20		.08		T.	T.				1.43	
Harlowton	do					.15								T.	T.					.01	T.			.35	T.							0.50	
Have	Milk			.16	.07	T.		.02	T.				T.						.04	.02			.16	.71	T.			.01				1.20	
Helena	Missouri		.09	.81	.15	T.		T.	T.				T.							.24	.05		T.	.09	T.							1.73	
Highwood	do		.13	.10	.50									.07	.77					.65			.18	.47	.07	.08	T.	T.				3.02	
Huntley	Yellowstone					.82								.05	.40	.75				.28			.18	.20				.17				2.85	
Jones Canyon	Gallatin		T.	.06	.10	.08								1.11	.01				.02	.68	.32		1.12	.31		T.	T.					3.81	
Jordan	Missouri				.25										.15	.20					.25											0.85	
Knobles Ranch	Milk			.02	.71	.22			.37					.02	.03				.05	.30	.15		.20	.26		.09						2.42	
Lonetree	Missouri			.20	.10															.55	.07		.05	.50	.13							1.60	
Lytle	do		.02	.17	.62	.01		T.						T.	T.					.26			.10	.31		.04						1.53	
Malta	Milk				.05	.38															.03		.30	.14		.03						0.93	
Medicine Lake	Missouri				.50									.02	.18						.12	.05										0.87	
Mildred	Yellowstone				.24									.03	.27	.30	.19			.03	.45	.09		T.		T.		T.				1.60	
Miles City	do				.14							T.		.07	.37	.22	.11			.08	.20		.16		T.				.09			1.44	
Norris	Madison		.02	.13	.17			.01					.05	.37	.21	.22	.11			.22	.09			.46	.23							1.96	
Olsen Creek	Jefferson		.22	.44	.66									.30	.06							.34		.09								2.11	
Pinegrove	Missouri				.55										.30					.38				.52	.12	.20	.22					2.29	
Pipestone Pass	Jefferson		.04	.65	.07	.03					T.	T.		.36	.05					.04	.03			.25	.22	.09						1.83	
Plevna	Yellowstone													.02	.27	.28	.26			.06	.35	.17		.05	T.			.07				1.53	
Poplar	Missouri					T.								T.	.25								T.									0.25	
Red Lodge	Yellowstone				.29							T.		.06	.66	.34	.06			.58				.65	.30		.26	.29				3.49	
Renova	Jefferson		.06	.13	.41								.05	.35						T.	.18			.20	.05							1.43	
Ryegate	Missouri				.83									.10	.20								.40	.35			.20					2.08	
Savage	Yellowstone				.02									.05	.12	.16	.30			.02	.26	.08	.04				T.	.10				1.15	
Shelby	Marias				.65	.08			.02					.15	.15	.05	.50			.15	.12		.31	.08		.32						1.56	
Sidney	Yellowstone		T.			T.	.16							.46	.28	.34	.25				.02	.44		T.		T.		T.		.20		1.44	
Springbrook	do		T.			T.	.16							T.	.33	.34	.25				.02	.44		T.		T.		T.				1.54	
Stearns	Missouri			.05	1.18									.46	.28	.34	.25				.43	.17		.80	.15	.30						3.82	
Suult Farm	Milk			.03	.03	.19		.21							.07					T.	.05			.12	.23	T.		.09				1.02	
Sun River Canyon	Missouri		.06	.02	.03	.43	.07	T.	.02					.70	.01						.16	.11		.02	.25			.14	T.			2.02	
Trail Creek	Yellowstone		.08	.05		.01								.62	.10					.83	.37		.47	.52		.08		.08				3.13	
Utica	Missouri		.04	.08	.17									.05	.33	.05				.27	.06			.28	.06	.08	.07	.10				1.64	
Valentine	do				.68										.25						.34			.37			.02	.06				1.72	
Valier	Marias			T.	.81	.02	.13							*	*	.11				.55	.13	T.		.40		.13						2.32	
Virginia City	Jefferson			.13				.06						.51	.03	.11					.18			.55	.11							1.57	
Wall Rock Mount'n.	Missouri		.04	.07	.09	.04								.46	.11					.33	.47	.04	.31				.04					2.00	
Warm Springs Creek	Madison		T.	.03	.14			.10						.1																			

TABLE 2.—Daily precipitation for September, 1912. District No. 6—Continued.

Stations.	Watershed.	Day of month.																													Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<b>North Dakota—Con.</b>																																
New Rockford.....	James.....				.12	.09								.11	.14	.48	.03		.07	.18	.23			.12					.08			1.65
New Salem.....	Heart.....				.08								.25	.10	.03	.50	.34	.03		.17	.02	.40	.01	.12					.09			2.14
Orange.....	Cannon Ball.....				.24								.18			.57	.24	T.			.28	.35		.20	.42		.04					2.52
Ranger.....	L/le Missouri.....																															
Steele.....	Missouri.....		T.										T.	.46	.01	.65	.36	T.	.26	.13		.45		T.	.85				.04			2.20
Turtle Lake.....	do.....				.02								T.	.29	.02	.65	.36	T.			.24	.56	T.						.07			2.21
Washburn.....	do.....				.02								*	.22	.11	.05	.44				.27	.64	.11	.11								1.97
Williston.....	do.....		.04	T.		T.							.02	.18	T.	.10	.14			T.	.16	.15	T.				.05	.05	T.			0.89
<b>South Dakota.</b>																																
Aberdeen  .....	James.....									T.				T.	T.	.10	.10	T.	.10		.12	.20	.08		.50	.20	T.			.32		1.72
Academy.....	Missouri.....										.17			T.		.19	.09	.06				.06			.11	.08	.13		.14			1.03
Ardmore.....	Cheyenne.....																															
Armour.....	Missouri.....										.25					.20									.50							1.05
Bellefourche.....	Cheyenne.....					.16					.58		.08		.09	.20	.19							.65	.52			.10				2.57
Brookings.....	Big Sioux.....	.01									.05			.01								.05			.75	.74						1.61
Bryant.....	do.....				.13			T.			.03	.17	T.	T.	.17	.11	.08	.03	T.		T.	.20			.22	.43	T.		T.	.15		1.72
Camp Crook.....	Little Missouri.....										T.				.02	.05	.37	.21	.01		.10	.15	.15	.54	.39	T.		.02				2.01
Canton.....	Big Sioux.....		.09				.11										.49															1.55
Cascade Springs.....	Cheyenne.....										.58			T.		.12	T.			.14				T.				.34				1.18
Castlewood.....	Big Sioux.....	T.			.11						.03	.11	T.		T.	.10	T.	.03	T.		.05	.06	T.		.38	.42	T.	T.	T.	.11	T.	1.40
Centerville.....	Missouri.....																															
Chamberlain.....	do.....										.15		.12									.10			.15							0.52
Clark.....	James.....										.13	.06	T.	.02		.06	.06	.06			.13	.23	.04		.40	.51	.02		.16	.09		1.97
Cottonwood.....	Missouri.....			.56							.07	.08			T.					.07	.09	.09			.05			T.	T.			1.30
Custer.....	Cheyenne.....					.30					.07	.77												.19	.17			.05				1.48
Daviston.....	Owl.....			T.	.19										.03	.38	.19	.11		.10	.04	.23			.28	.08	T.		.02			2.25
Deadwood.....	Cheyenne.....										1.40			.15	.55	.50	.20		.25	.30	.10			.40	.60			.20	.05			4.70
Deerfield.....	do.....	T.				.03					.04	1.08		.05	.02	.03	.01				.18			.05	.05		.01	.12				1.67
De Smet.....	James.....			T.				.32			T.	.30				.15	T.	.20				.40			.55							1.92
Dowling.....	Cheyenne.....			T.							.10	.35		.25	.10	.12	.15	.30		T.	.10	.05			.40				T.	T.		1.92
Dumont.....	do.....					.49					1.38			.12	.15	.28	.11				.23	.15	.12	.26	.09	.04	T.	.23				3.65
Eagle Butte.....	Grand.....										.02	.14		.37	T.	.20	T.	.04		.08	.02	.32	T.	T.	.55			.02				1.76
Eales.....	Missouri.....										.01	.07		T.	.07	T.	.20	.03	.05		.05	.03	.24	.06	T.	.25				.07		1.13
Edson.....	Cheyenne.....																															
Elk Mountain.....	do.....			.02		.04					.10	.75	.05			.04	.18						.25						.12			1.55
Ellingson.....	Grand.....			T.		.38							T.	T.	.04	.38	.17	.07		.15	.06	.10		.54	.27		T.					2.16
Englewood.....	Cheyenne.....			.30			T.				.50		T.	.05	.06	.90	.80			.05	.05	.10	.10	.30	.60			.05		.05		3.91
Eureka.....	Missouri.....	.01									.58	T.		.10	.02	T.	.18	.02	.06		.16	.01	.34	.01	T.	.05	T.	T.		.08	.01	1.43
Fairfax.....	do.....										.40	.05	T.			.15	.05	.08						.22								1.02
Faulkton.....	James.....	.01									T.	.04		.01		.12		.05	.01		.08	.18			.36							1.05
Flandreau.....	Big Sioux.....										.01					T.		.30				.10			.40	1.05						1.86
Forestburg.....	James.....										.21					.08	.05	.14				.20			.99		.05			.11		1.83
Fort Meade.....	Cheyenne.....				.10						.50	.50		T.	.40	.20	.10			.20		.20		.10	.10					.10		2.50
Frederick.....	James.....														.07	T.	.20								.15	.08						1.04
Gannvalley.....	Missouri.....																															
Greenmont.....	Cheyenne.....										1.85			.20	.22	.30	.20	.50	.12		.20	.10			.30	.50	.10	.08	.10	.20		4.97
Greenwood.....	Missouri.....										.17					.12	T.	.14						.53								0.96
Hardingrove.....	Cheyenne.....										.16	.26				.10	.12	.25		.03	.04	.10			.40		.05		.04			1.55
Hardy Ranger Station.....	do.....				.02						.07	1.40	.02	T.	.15	.60	.04			.28	.30	1.17		T.	.15	.02		.04	.10			4.36
Harveys Ranch.....	do.....				.08						1.36		T.		.10	.10	.05			.20	.10	.10		.55	.25		.05		.23			3.17
Hermosa.....	do.....										.34	.16			.04	.05	.07			.03				.05	.02			.13				0.89
Highmore.....	Missouri.....															.12	.03	.01		.05	.05	.16	.01		.40		.09					0.71
Hopewell.....	Cheyenne.....			T.							.08	.12		T.	.05	T.	.30	.05	.06		.01	.02	.11		.10		.07	T.	T.			1.27
Howard.....	Missouri.....							.32			.02	.13		T.		.12	T.	.33				.20			.42		.02		T.	.10		1.66
Howell.....	James.....	.01									.01			.34		.11	.04	.01	.02	.06	.03	.06	T.		.48	.02	.01	T.	T.			1.31
Huron.....	do.....				.07						T.	.23		T.	.11		.12	.02	.03		.01	T.	.17		T.	.41		.01		.22		1.40
Ipswich.....	do.....															.16		.04			.09					.20				.20	.03	0.72
Kadoka.....	White.....				.30						.09	T.				.15	.35	.08		.04	.04	.11		T.	.12							1.28
Kennebec.....	Missouri.....				.04		T.				.08	.24					.05								.55					.20		1.16
Kidder.....	James.....																			.24				.32	1.05	.45			.87			2.93
Kimball.....	Missouri.....										.02			T.	.03		.25	T.	T.					.26			.07		.08			0.74
Lacreek.....	White.....																															
La Delle.....	James.....										.15					.15	T.							T.	.20	T.			.15	.45		1.67
Lead.....	Cheyenne.....					.03					1.35		.15		.41	.46	.15	.02		.20	.21	.21										

TABLE 2.—Daily precipitation for September, 1912. District No. 6—Continued.

[illegible]

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Nebraska—Contd.																																	
Ewing	Elkhorn	T.								.10	.62	T.	.18	.10	.10	.13	.14	T.				.10	T.			.35			.34	.12		2.28	
Exeter	Blue																																
Fairbury	do.		.05		.10	T.				.67	.13		.86		.60	T.					.81			.07	T.			.11	T.	.20		3.40	
Fairmont	do.	.27	T.	.16						T.	.16	.47			.38	.06	.06	T.	.15	T.		.30				T.			.20			2.21	
Falls City	Missouri	.82	.10	.4	.10					T.				.91	.74	.42					.25				.25	.05	.20	.20	.10			7.59	
Fort Robinson	White			.10							.70	.28			.09		.01				.37				.04		.05					2.14	
Franklin	Republican							.76			.35	.06		.08	.24	.01											.19		.20	.38		1.69	
Fremont	Platte	.06	.56	.07			.23			1.11					.20	.20						.15				.16		T.	.20			3.32	
Fullerton	Loup		.93			.45				.80	.70		.18		T.										.22				.43	.27		3.98	
Geneva	Blue		T.	.11			.27			T.	.30	.13	T.	.07	.14	.02					.42				.04				.04	T.		1.54	
Genoa	Loup		.31	T.			.16			1.75	.16	.05	.02	.43	.09	.06	.01	.04			.01		T.		.19			T.	.37	.20		3.85	
Gordon	Niobrara									.70															.12				.34			1.16	
Gosper	Republican				.03					.15	.91			.67	.13	.25		.06							.07				.19			2.46	
Gothenburg	Platte	T.								.15	.90	.10	T.	.63	.30	T.								T.					.10			2.18	
Grand Island	do.		.14					.20		1.10	.25	.10	.08		.20		.38				.14				T.	.24		T.		.30			2.61
Grant	Republican									.21		.11	1.01																				2.37
Greeley	Loup	.06				.16				.19	.55	.37	.06	.47	.08	.38				.01						.26							3.89
Guide Rock	Republican									1.00				.10	.15													.05	.05				1.35
Haigler	do.									.30		1.05	.03																				1.38
Halsey	Loup									.53	T.			.02	.17	.17	T.					T.			T.			.22					1.11
Hartington	Missouri					1.50				.52	.32			T.		.06				.26		.06				.32	.70		.06				4.04
Harvard	Blue			T.						.23	.55	.23		.13		.24					.22			T.				.22	T.	.25			2.

TABLE 2.—Daily precipitation for September, 1912. District No. 6—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Iowa.</i>																																	
Afton	Grand	1.31	2.67	28			.05				T.			.41	.34						.70				T.			.08	.18			6.02	
Allerton	Chariton		.09	.60										.23	.85			T.			.40				T.				.12			2.29	
Alton	Floyd					.13	.44	.02			.33			.06	T.	.29		.42				.00			.51	.13				T.		2.36	
Atlantic	Nishnabotna.	.30	1.91	.09	T.					.09	.51			.03	.34	.57	.02	.06			.36			.38	T.	.15	T.	.40	T.			6.05	
Audubon	do	.24	2.25				1.87			.16	2.20			.50	.25	.18		.30			.86			.45	.05			.10	.61	.10		10.12	
Bedford	Missouri	.58	.77	.50							.10		T.	.55	.45	.07		.06			1.13			.10		T.		.05	.07			4.43	
Centerville	Chariton	.01		T.										.03	.05	.03			.05		.04							.07				0.28	
Chariton	do	.22	.35	.55							T.				.38	.45	T.	T.			.55				T.		T.			.07		2.50	
Clarinda	Nodaway	.52	.61	.46	.28		T.	T.						.30	.15	.42				1.16	.03					.05		T.	.14	.02		4.14	
Corning	do	.36	1.52	.39							T.	.18			.02	.71				1.27										.32		4.14	
Corydon	Chariton	.05	.13	.48							T.			.31	.42	.58	.02	T.	.03		.53				.05	.02	T.	.13	.01			2.76	
Council Bluffs	Missouri	.37	1.88	.98					.20		.10	1.09		T.	.21	.89	.91		.12	T.		.12				.20	.03	.08	.33			7.91	
Creston	do	1.20	1.84	.20	.22			.07			T.			.29	.07	1.46			.10		.65	.13				.16		.22	.03			6.64	
Cumberland	Nodaway	.45	1.00	.10							T.	.35			.35					1.57					.14			.04	.84			4.94	
Denison	Missouri	.37	1.49				.17			.03	1.40			.54		.15		.09			.77				.66			.10	.27	T.		6.04	
Elliott	Nishnabotna.	T.	.69	.07			.25				T.	.06		.07	.60	.13		T.			.50				.66			.03				2.53	
Greenfield	Nodaway	.65	1.77	.03			.03				T.	.21		.18	.60	.08			.03		.73				.04	.03	.04	.08	.20			4.72	
Harlan	Nishnabotna.	.123	.56	T.			1.05			.04	1.98			.25	.43	.01	.02	.17		T.	.												

TABLE 2.—Daily precipitation for September, 1912. District No. 6—Continued.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Kansas—Continued.																																
Tribune.	Smoky Hill.				T.					.12	1.10		.15	.02	.45		T.															1.84
Valley Falls.	Kansas.	.25	.05									.45		.30	.70	.05					.01				.10				.41			2.32
Vinland.	do.	1.37		.01								.08		1.47	1.08						.19											4.20
Wakeney.	Smoky Hill.									.03	.16	.18		.03	.03	.03													.10			0.56
Wallace.	do.																															
Wamego.	Kansas.	.12	.55				T.					.20	T.	.58	1.85		T.								.45				.40			4.15
Missouri.																																
Amoret.	Osage.		T.	1.25										.60	.80		T.	.01			.34				T.							3.00
Appleton City.	do.	.69												.76	.54			.08			.35				.06							2.48
Arthur.	do.							.05						.80	.28			.13			.33											1.59
Avalon.	Grand.			.50										.30	.40	.07					.33								.45			2.05
Bethany.	do.		.24	1.36										.43	1.51		T.	.21			.20											3.95
Bolivar.	Osage.							1.05		.42				.17			.49				2.75				.64							5.52
Boonville II.	Missouri.		.25							.41				.18	1.00			.05			T.	1.15			.04							3.08
Brunswick II.	Grand.		.86											.09	.15						.35			.38					.09			1.57
Clinton.	Osage.	.32	.38											.43	.13						.35											1.61
Columbia.	Missouri.	.05	.01							.32				.02	1.75	.01		.01			1.35				.03							3.55
Crocker.	Gasconade.	1.30											T.	.20			.70			.85	1.84			.30								5.19
Eldon.	Osage.		.14											.03	.42	.45		.15			1.00	.52										2.71
Eldorado Springs.	do.	T.	.96											.14	T.			T.			.73					.67						2.50
Fayette.	Missouri.	.10	.03						.45			.06	1.05								.60				T.							2.29
Fulton.	do.		.18																		.91	.86						.05				2.45
Glasgow II.	do.		.06											.06	.16							.48										0.76
Grant City.	Grand.	.10	.48	1.28										.43	.40	.22	T.		.33	T.	.40			T.				T.	.15			3.79
Harrisonville II.	Osage.		.50											.19	.32	.36					.34	.21				.01						1.93
Hazelhurst.	Grand.		T.	.10			.30						T.	.21	.43			T.			.07				T.				.18			1.29
Hermann II.	Missouri.		T.						.04					.12	1.28	T.	.30	.10			2.38	T.										4.22
Houston.	Gasconade.		T.											.12	.15		1.16				1.13	3.50			.45							5.49
Jefferson City II.	Missouri.		.02							.08				.05	.53		.05				1.45											2.18
Kansas City.	do.		.41								.01			.68	.65	.01					.21				.02							1.99
Kidder II.	Grand.			.10						.66	.70			.07	.12	.40				.08			.12						.02	.35		2.62
Lamonte.	Missouri.			.76										.16	T.	T.					.45											1.37
Lebanon.	Osage.											.08						1.10			.87	.25			.32							2.62
Lexington II.	Missouri.			.15										.01	.30	.34			.05			.23										1.06
Liberty.	do.		T.											.61	.60						.15								.20			1.56
Lockwood.	Osage.																															
Marshall.	Missouri.			.25										.27	.21	.02	T.		.18		.26				T.	T.						1.19
Maryville II.	do.	.25	.20	1.41	.48									.39		1.06			.04		.40				T.		.09			.03		4.35
Mount Vernon.	Osage.			.22							.95			T.	.35						1.12	.25										2.67
Nevada.	do.			.15										.59	.22			.22			.18											1.43
Oregon.	Missouri.		.15	2.58								.02	T.	.51		.88					.03	.01			.18			T.	.10			4.66
Pattonsburg II.	Grand.																															
Rolla.	Gasconade.		.66	.05										T.	T.	.87		1.28	.01		.73	1.16				.56						5.32
St. Charles.	Missouri.			.06											.06			.66	.32		1.72					T.						2.82
St. Joseph.	do.		T.	.28	1.32								.01	.45	1.04			T.	.02		.01				.02				.28			3.43
St. Louis (1).	Mississippi.			T.										T.	.21			T.	1.37	T.	.38	.86				.02						2.84
St. Louis (2).	do.			T.										T.	.17	.06		1.06			10	1.20					.02					2.61
Sublett.	Chariton.			T.			T.							.10	2.00						1.50											3.60
Tarkio.	Missouri.	.60	.40	.83						.09				.06								.98										2.96
Trenton.	Grand.			.78			T.			.28				.16	.55			.04			.09				.02			.04	.21			2.38
Unionville II.	Chariton.	.04	T.	T.	.30									.10	.06	.66	T.	T.	.06		.24				.02	T.			.10	.12		1.68
Warrensburg.	Missouri.			.37					T.					.19	.48	.02	T.				.57											1.63
Warrenton II.	do.													.15	.50			.37	.09		1.84	.02										2.97
Warsaw.	Osage.		T.	.78						T.	.23			.08	.29			.08	.03		1.00	.04		.03	.20							2.76
Wheatland.	do.		.09										.06	.04				.17					.20									0.56

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 6, Missouri Valley.

Date.	Wyoming.														Montana.										
	Cheyenne		Fort Laramie.		Lander.		Newcastle.		Pathfinder.		Sheridan.		Yellowstone Park.		Billings.		Dillon.		Havre.		Helena.		Malta.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1.....	81	50	91	56	74	46	88	54	77	60	72	44	56	38	72	54	74	33	66	44	62	45	68	44	
2.....	78	47	85	45	79	46	76	50	77	51	89	45	66	37	86	39	72	35	62	39	59	42	70	39	
3.....	81	53	90	58	81	43	65	48	77	54	80	42	69	44	78	44	70	37	65	49	54	47	68	47	
4.....	80	53	92	56	76	51	60	48	77	54	81	43	61	40	75	44	74	33	58	52	50	42	65	50	
5.....	76	47	76	50	64	41	58	50	68	46	68	38	49	35	68	48	73	34	61	45	59	40	60	49	
6.....	75	44	84	35	77	37	65	52	74	40	73	35	66	31	78	36	74	31	70	38	72	38	73	37	
7.....	81	52	89	46	75	49	76	50	76	52	86	40	58	37	86	45	72	32	76	51	72	46	77	38	
8.....	79	47	84	42	64	47	85	56	74	50	66	47	55	33	64	42	70	34	65	49	60	41	70	37	
9.....	53	42	58	40	47	39	68	50	62	40	53	47	57	32	69	35	69	32	68	45	64	38	70	42	
10.....	56	40	56	43	50	39	56	48	48	39	55	48	54	35	69	37	72	32	71	36	67	40	72	39	
11.....	56	44	65	46	61	44	62	48	67	44	62	39	55	39	71	40	72	33	73	40	68	40	72	40	
12.....	68	48	78	50	67	39	62	40	63	45	69	41	62	35	78	38	73	32	73	39	71	43	75	42	
13.....	60	33	60	45	56	32	52	38	60	33	58	35	47	30	56	45	68	31	55	43	56	42	68	44	
14.....	34	29	46	39	39	32	48	36	35	31	40	33	41	29	45	39	65	32	53	33	45	37	68	36	
15.....	41	25	52	33	45	30	44	33	42	26	41	32	40	30	42	34	69	30	56	25	55	34	69	38	
16.....	54	31	60	34	58	31	40	32	52	33	49	31	56	25	62	29	72	29	64	23	67	33	68	25	
17.....	59	37	63	32	64	30	52	32	60	36	64	28	65	27	74	30	73	30	75	26	70	45	73	24	
18.....	69	33	76	32	73	33	71	34	68	38	73	34	64	31	76	39	67	32	72	46	74	50	74	26	
19.....	69	33	60	40	64	32	60	42	69	34	55	36	57	31	58	46	70	31	49	39	52	38	58	32	
20.....	43	30	52	33	46	29	42	34	42	31	46	34	39	27	54	39	74	30	54	33	51	36	49	25	
21.....	54	33	62	33	59	30	52	30	55	34	58	42	53	21	63	33	69	31	65	29	63	31	63	31	
22.....	65	33	74	29	68	31	65	40	63	37	70	40	51	33	68	39	65	33	50	38	58	39	60	35	
23.....	60	39	63	42	56	33	56	36	59	43	48	35	46	31	47	42	62	32	39	33	49	34	40	35	
24.....	39	26	38	32	36	26	44	32	43	28	40	31	41	25	45	34	68	31	42	30	47	34	45	34	
25.....	53	22	62	22	52	21	40	22	50	26	50	27	44	28	54	28	65	32	51	29	50	36	53	37	
26.....	52	34	55	27	56	29	45	28	55	36	47	37	51	30	60	39	67	28	53	34	52	36	53	30	
27.....	52	36	54	39	49	32	38	30	52	30	52	49	39	48	31	54	39	65	29	52	33	54	40	53	35
28.....	43	32	48	30	44	37	44	28	47	31	44	35	47	25	51	31	69	30	47	26	54	33	.....	22	
29.....	41	30	50	32	54	35	48	24	53	33	60	23	63	21	65	23	72	29	65	22	60	27	.....	24	
30.....	68	24	75	24	63	27	68	30	63	28	73	23	68	28	74	31	70	29	73	26	67	33	.....	22	
Mns.....	60.7	37.6	66.6	39.2	59.6	35.7	57.7	39.2	59.9	38.9	60.6	36.8	54.2	31.3	64.7	38.1	69.8	31.6	60.8	36.5	59.4	38.7	64.2	35.3	

Date.	Montana.				North Dakota.										South Dakota.													
	Miles City.		Poplar.		Berthold Agency.		Bismarck.		Dickinson. §§		Jamestown. §§		Williston.		Aberdeen. §§		Huron.		Kadoka.		Kimball.		Lemmon.		Pierre.		Rapid City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	75	60	71	50	71	47	74	49	82	47	77	50	71	50	80	55	88	59	86	55	84	59	84	51	84	62	75	55
2.....	93	46	88	38	80	34	80	40	82	36	77	42	81	37	85	45	81	48	86	54	80	50	82	46	81	54	85	52
3.....	82	52	80	47	93	59	93	66	91	54	88	45	80	51	95	46	87	67	97	62	87	65	85	60	93	67	92	63
4.....	81	66	71	59	93	60	94	67	95	56	89	63	84	60	95	68	94	60	90	64	97	62	94	69	91	68	91	58
5.....	70	56	76	54	78	57	82	49	79	61	89	64	66	48	95	70	94	60	87	61	90	70	75	52	86	60	76	51
6.....	78	44	80	54	77	40	82	46	76	40	80	45	71	44	85	43	83	48	88	48	82	53	80	46	86	52	83	46
7.....	79	48	82	56	83	35	86	44	82	43	83	44	80	43	90	45	90	61	94	58	90	61	84	52	95	65	89	53
8.....	71	52	78	46	74	45	79	54	80	45	95	43	70	51	93	58	96	66	80	57	93	61	77	53	85	63	75	58
9.....	68	47	76	42	70	42	74	51	69	47	75	55	65	45	80	50	81	62	75	50	80	62	74	53	79	60	71	52
10.....	64	45	73	33	68	39	65	46	65	41	67	44	68	36	65	53	66	55	65	53	71	54	75	54	64	56	56	50
11.....	76	44	74	36	77	31	76	40	74	37	75	38	74	38	80	42	74	47	74	60	70	46	73	59	74	46	66	45
12.....	78	48	78	42	79	40	75	49	77	45	67	41	77	43	76	44	72	51	84	51	75	54	79	53	79	58	74	54
13.....	59	46	73	46	65	46	58	44	60	47	58	48	57	42	60	46	69	49	65	50	70	51	66	43	65	49	59	45
14.....	44	40	48	42	49	38	49	39	47	37	48	41	45	39	56	38	59	42	57	43	60	44	46	34	55	45	47	39
15.....	44	38	51	38	44	36	41	38	40	34	46	39	46	37	50	43	54	42	52	38	54	41	45	34	52	39	43	35
16.....	50	40	59	38	50	35	44	37	43	32	49	30	48	37	50	34	52	33	52	38	54	35	46	32	51	43	47	37
17.....	65	32	68	29	61	28	58	36	57	32	54	39	63	30	52	39	55	36	50	38	55	36	55	36	50	43	51	38
18.....	75	40	76	33	75	29	75	35	75	32	71	33	78	38	76	36	70	37	73	33	67	34	76	37	72	37	71	36
19.....	50	48	64	41	62	41	57	44	59	46	56	35	57	43	63	37	70	39	60	45	70	41	63	45	63	46	58	43
20.....	48	38	49	36	50	39	47	39	46	35	51	39	43	38	53	35	54	40	48	39	55	40	59	35	52	43	46	39
21.....	55	38	46	35	41	40	47	43	45	35	46	37	46	40	53	40	52	39	50	37	49	39	58	33	50	40	55	35
22.....	60	39	50	33	56	34	63	41	54	31	60	36	50	35	67	43	69	43	74	33	69	35	67	34	71	41	73	33
23.....	44	42	51	34	53	39	49	39	48	40	45	38	48	35	54	47	71	46	67	44	70	41	51	40	58	46	55	34
24.....	50	36	50	28	47	31	42	32	45	31	38	31	47	26	37	34	50	32	48	32	63	31	41	35	46	33		

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 6—Continued.

Date.	South Dakota.						Colorado.						Nebraska.															
	Sioux Falls. §§		Water-town. §§		Yankton.		Denver.		Wray.		Alma.		Bridgeport.		Grand Island. §§		Hay Springs.		Hebron.		Lincoln.		North Platte.		Oakdale.		Omaha.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	91	59	90	54	92	62	85	54	90	56	97	63	88	57	94	70	86	55	95	70	97	74	91	55	94	56	96	72
2.....	82	55	80	44	81	60	88	54	83	57	91	62	88	57	89	66	85	48	89	72	85	67	90	58	80	64	80	68
3.....	86	57	85	46	84	67	87	56	92	53	98	67	88	54	92	67	90	55	91	71	88	69	92	62	87	66	84	68
4.....	90	65	89	64	92	72	88	55	92	55	100	71	91	51	97	72	91	55	94	73	96	75	95	68	94	70	89	75
5.....	94	70	92	68	97	66	81	58	84	57	98	73	76	50	100	73	81	52	95	73	98	74	98	64	98	64	91	74
6.....	84	57	83	45	81	58	82	49	84	51	95	65	82	42	92	62	80	45	90	65	89	69	87	54	83	56	88	72
7.....	90	57	88	46	94	64	86	51	93	45	95	55	90	42	100	64	88	48	94	72	97	73	95	53	91	63	93	72
8.....	95	62	95	57	97	73	87	55	95	49	99	65	85	45	99	74	78	45	96	67	99	74	95	66	94	67	94	73
9.....	83	67	82	61	78	65	82	48	79	60	90	61	75	51	87	76	68	50	96	71	94	68	77	61	75	65	92	66
10.....	68	59	68	56	69	59	60	48	74	57	83	63	66	50	80	64	64	49	85	66	83	66	70	56	70	60	84	68
11.....	71	53	75	41	71	55	63	49	64	53	70	59	58	51	69	60	64	48	74	63	73	61	62	55	68	57	72	62
12.....	73	51	77	41	71	55	71	48	76	57	75	60	76	54	72	60	76	54	76	62	74	60	69	56	71	55	73	61
13.....	75	53	71	49	76	52	68	37	74	49	78	58	65	48	78	58	65	45	75	63	79	58	72	50	74	50	79	59
14.....	58	40	69	36	56	46	43	32	60	38	60	50	50	39	60	50	50	39	63	49	59	49	49	43	54	44	61	50
15.....	49	42	50	36	54	46	52	32	53	39	56	45	54	38	58	44	48	33	56	47	55	47	55	42	55	43	55	50
16.....	63	39	54	30	64	42	65	35	69	43	69	34	60	32	68	45	52	33	63	52	66	42	64	39	65	39	65	46
17.....	55	38	55	31	56	41	69	42	64	41	65	45	58	33	65	46	52	29	63	51	63	46	57	37	55	40	63	46
18.....	64	38	69	32	64	42	74	37	74	33	70	31	74	30	67	38	72	27	65	38	65	42	71	33	63	41	62	43
19.....	75	40	77	33	80	47	76	36	84	41	86	40	68	36	84	45	68	34	82	45	81	48	77	42	79	44	78	48
20.....	57	43	54	39	60	44	51	33	59	43	70	36	51	32	62	48	50	36	60	48	62	47	57	40	59	43	60	50
21.....	53	37	48	39	53	39	62	33	63	31	67	32	57	33	61	42	54	35	63	36	62	41	60	38	55	35	60	44
22.....	65	39	64	38	68	40	74	36	75	31	78	28	76	26	76	49	71	32	76	37	76	43	73	32	67	36	74	48
23.....	78	40	72	41	77	46	64	43	74	34	80	40	60	39	79	46	60	38	77	46	79	48	74	39	75	38	78	50
24.....	51	40	51	47	63	33	44	32	58	35	60	40	48	35	62	49	45	30	60	46	61	38	48	33	56	34	61	39
25.....	45	32	54	30	47	33	59	30	59	22	57	28	60	21	53	32	53	20	54	35	54	36	55	27	49	32	52	36
26.....	45	31	45	25	57	36	60	33	66	41	63	33	58	33	60	41	55	34	60	34	61	34	62	38	59	32	58	38
27.....	55	28	50	21	45	31	64	35	69	37	55	40	58	39	45	40	48	32	52	44	45	39	45	38	42	33	48	38
28.....	56	28	50	22	54	30	48	40	60	32	49	39	54	33	47	39	42	32	49	42	49	39	58	38	48	36	47	40
29.....	57	30	55	30	49	35	41	34	51	35	47	35	53	33	49	37	52	23	49	37	52	37	52	34	48	31	53	39
30.....	28	69	32	68	34	70	32	69	35	67	21	68	30	65	29	72	25	62	26	64	33	67	27	64	27	62	27	37
Mns..	69.2 <sup>a</sup>	45.9	68.7	41.1	70.0	49.1	67.6	41.9	72.9	43.7	75.6	48.0	67.1 <sup>a</sup>	39.9 <sup>a</sup>	70.0	52.9	65.3	39.4	73.7	53.4	73.5	53.2	70.2	45.9	60.1	47.4	71.7	54.4

Date.	Nebraska.		Iowa.				Kansas.								Missouri.											
	Valentine.		Clarinda. §§		Sibley. §§		Sioux City.		Colby.		Concordia.		Salina.		Topeka.		Wakeeney.		Columbia.		Kansas City.		St. Louis.		Unionville. §§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	90	62	96	69	89	61	90	69	95	58	99	76	99	75	98	79	99	69	95	74	95	78	94	76	95	72
2.....	78	55	77	65	79	56	79	65	93	60	92	74	90	73	91	68	95	68	91	70	89	69	92	75	84	66
3.....	89	62	85	65	85	58	82	68	98	60	95	71	94	71	92	70	99	67	91	69	91	69	92	76	90	65
4.....	93	64	91	67	90	65	88	72	97	63	95	70	97	72	95	75	98	70	94	73	94	74	94	76	93	68
5.....	87	55	93	67	92	71	92	69	93	67	93	75	96	75	95	70	99	72	95	72	93	74	94	77	94	70
6.....	85	49	89	62	80	59	83	66	89	57	96	67	91	70	95	72	99	63	95	70	93	76	93	79	97	69
7.....	95	56	96	67	90	59	91	65	96	53	98	71	96	70	97	72	98	60	98	68	96	75	94	77	98	66
8.....	87	61	97	66	93	62	93	70	100	70	93	73	100	73	97	71	99	66	98	70	97	76	95	74	97	70
9.....	75	57	96	62	85	69	85	65	82	60	95	70	98	76	98	73	94	70	95	75	96	78	93	77	99	71
10.....	66	52	85	61	69	60	70	63	81	61	91	66	92	69	92	70	90	64	95	71	90	74	93	75	90	66
11.....	67	46	80	62	71	50	72	55	65	55	76	65	81	69	77	66	78	62	85	68	80	69	86	70	83	62
12.....	71	55	81	56	74	49	69	54	69	57	73	64	78	62	80	62	66	59	80	61	79	62	78	62	86	52
13.....	65	49	72	57	76	49	77	54	74	57	78	62	80	61	75	62	77	62	70	59	70	59	81	62	72	55
14.....	54	43	62	52	64	58	60	47	62	43	62	50	68	52	68	55	69	47	79	64	68	62	86	68	68	58
15.....	53	39	62	52	54	39	53	47	53	41	58	50	60	51	62	54	55	45	68	64	63	57	76	67	65	56
16.....	52	38	68	50	63	43	64	46	65	40	67	44	64	48	65	52	67	38	68	60	63	53	78	65	60	52
17.....	48	35	69	44	54	42	57	45	65	44	67	48	67	48	72	51	73	43	65	55	70	54	68	60	70	43
18.....	71	30	63	39	60	41	62	43	72	35	67	40	66	42	64	44	76	35	63	47	62	46	64	55	61	42
19.....	64	45	79	40	76	39	75	46	84	45	83	51	76	53	82	49	88	46	77	45	80	50	73	51	75	43
20.....	52	37	59	40	58	40	60	47	71	45	63	48	64	53	69	51	82	49	64	52	67	53	75	59	65	47
21.....	55	36	62	39	51	35	54	41	63	34	66	41	64	38	68	45	67	39	68	50	68	46				

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 7, LOWER MISSISSIPPI VALLEY.

ISAAC M. CLINE, District Editor.

## GENERAL SUMMARY.

Unseasonably warm weather prevailed during the first 18 days of the month, especially over the eastern portion of the district where maximum temperatures were above 90° at all stations nearly every day and above 100° in many localities. From the 19th to 31st moderate temperature conditions prevailed. Precipitation was general over the district from the 9th to 16th, and scattered showers occurred during the remainder of the month, but the amounts were generally light, although in most cases sufficient for agricultural needs, except that in parts of Oklahoma and the Texas and Kansas areas droughty conditions prevailed during the greater part of the month. On the whole, conditions were favorable for all outdoor occupations.

The following table summarizes the chief features of meteorological interest in the various portions of the district.

States and portions of States lying within District No. 7.	Mean temperature.	Departure from normal.	Mean precipitation.	Departure from normal.	Greatest precipitation in 24 hours.	Mean snowfall.	Number of days—				Prevailing wind direction.
							With 0.01 inch or more.	Clear.	Partly cloudy.	Cloudy.	
Colorado.....	52.8	-6.2	1.15	-0.13	1.20	8.5	5	17	6	7	sw.
New Mexico.....	59.8	-6.2	1.44	-0.46	3.99	T.	4	17	8	5	sw.
Texas.....	70.1	-1.3	2.51	-0.60	3.00	0	4	17	7	6	s.
Kansas.....	67.2	-2.9	2.67	-0.17	4.35	T.	6	14	8	8	s.
Oklahoma.....	71.5	-1.9	2.05	-0.86	3.93	T.	4	18	6	6	s.
Missouri.....	70.1	0.0	3.83	+0.10	2.95	0	6	19	6	5	s.
Tennessee.....	73.3	+1.1	1.80	-0.69	1.70	0	5	23	2	5	n.
Arkansas.....	78.5	+1.0	2.40	-0.94	3.30	0	4	18	8	4	sw.
Mississippi.....	76.9	+1.8	2.73	-0.39	4.00	0	5	19	6	5	ne.
Louisiana.....	79.2	+1.8	2.78	-1.07	4.00	0	6	15	7	8	n.

## TEMPERATURE.

To the westward of the 94th meridian, mean temperatures ranged from 0.2° to 7.2° below the normal, the greatest deficiency being in the Colorado and New Mexico areas, while to the eastward of that line they were from 0.7° to 3.7° above the normal, the greatest excess being in Louisiana and in the Mississippi area. At many stations maximum temperatures were above 90° on a greater number of days than ever before recorded during the month of September, and maximum readings of 100°, or higher, were recorded in all parts of the district except in the Colorado and New Mexico areas where the highest temperatures were 97° and 98°, respectively. The highest temperature recorded, 108°, occurred at Jefferson, Okla., and a maximum reading of 106° was recorded at Pratt, Kans., and at Bee Branch, Ark. The lowest temperature recorded, 8°, occurred at Elizabethtown, N. Mex., and a minimum reading of 15° was recorded at Westcliffe, Colo.

## PRECIPITATION BY DRAINAGE AREAS.

*Arkansas River and tributaries.*—Except in Kansas and a few other widely scattered localities, the precipitation was below the normal over this drainage area. Over the headwaters of the Arkansas River in Colorado the average from 32 stations was 1.16 inches, about 0.2 inch below the normal. The average from 42 stations in those portions of the Arkansas Valley proper that lie in Kansas and Oklahoma was 2.82 inches, about 0.3 inch above the normal. Over the headwaters of the Canadian River in New Mexico the average from 39 stations was 1.26 inches, about 0.4 inch below the normal. Over those portions of the Canadian Valley that lie in Oklahoma and Texas the average from 31 stations was 1.97 inches, about 1 inch below the normal. The average from 20 stations in the Cimarron Valley was 2.12 inches, about 0.3 inch below the normal. Over the Verdigris Valley the average was 2.32 inches, about 2 inches below the normal, and over the Neosho Valley the average was 3.09 inches, about 0.6 inch below the normal. Below the Oklahoma-Arkansas line the average from 13 stations in the Arkansas Valley proper was 2.26 inches, about 1 inch below the normal.

*Red River and tributaries.*—Over those portions of the Red River Valley that lie in New Mexico, Texas, and Oklahoma the precipitation from 44 stations averaged 2.24 inches, about 1 inch below the normal. Below the Texas-Arkansas line the average from 21 stations was 1.58 inches, about half the normal amount.

*Mississippi River south of St. Louis and small tributaries.*—The precipitation was deficient over this drainage area, except in the valleys of the White and Yazoo Rivers. Over the immediate Mississippi Valley, the average from 33 stations was 2.73 inches, about half an inch below the normal. The average from 24 stations in the Valley of the White was 3.59 inches, about the normal amount. Over the Yazoo Valley the average from 19 stations was 3.28 inches, about half an inch above the normal. The average for the valley of the Big Black was 2.24 inches, about 0.9 inch below the normal. The amounts from 21 stations in the Ouachita Valley averaged 1.70 inches, about 1.4 inches below the normal.

*Louisiana coastal plain.*—Heavy precipitation occurred in a few localities, but generally there was a deficiency, the average from 36 stations being 3.56 inches, about 0.9 inch below the normal.

## SNOWFALL.

Snow occurred generally over the more elevated portions of the Colorado area and the northern portion of the New Mexico area. The monthly amounts ranged from a trace over northern New Mexico to 23.5 inches at Fairview, Colo.

## RIVERS.

No floods occurred in Oklahoma and there were no decided changes in the stages of the streams, the rivers continuing below the normal generally.

In Kansas all streams were low and no decided changes occurred.

In Arkansas, the White, Black, and Arkansas Rivers continued unusually low throughout the month. At Little Rock the Arkansas was not navigable at any time, the highest stage recorded being 2.8 feet on the 1st.

The Mississippi River below St. Louis was low throughout the month, and, except for a few slight and unimportant rises, there was a general fall from the 1st to 31st.

The Red River continued low, and, except for a sharp rise at Fulton, Ark., on the 23d-24th, there was a general fall.

The Ouachita River fell steadily, except for a few minor rises, and the stages were low generally.

TABLE 1.—Climatological data for September, 1912. District No. 7, Lower Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Colorado.</b>																				
Buena Vista.	Chaffee.	7,955	12	46.0	- 8.3	71	1	18	20	38	0.85	+ 0.30	0.65	7.0	4	18	9	3	sw.	C. A. Short.
Calhan.	El Paso.	6,700	5	51.8		81	3†	24	25†	49	2.09		0.96	7.5	9	20	4	6	se.	H. B. Rice.
Canon City.	Fremont.	5,343	24	56.8	- 8.2	87	2†	31	30	40	0.90	+ 0.14	0.52	1.0	4	22	2	6	ne.	U. S. Weather Bureau.
Colorado Springs.	El Paso.	6,008	32	52.9	- 6.6	78	1†	24	21	37	0.60	- 0.54	0.43	4.0	5	12	9	9	se.	Colorado College.
Cripple Creek.	Teller.	9,396	11								0.91	- 0.60	0.40	13.8	4					F. G. Willis.
Cuchara Camps.	Huerfano.	8,200	3								0.94		0.54	3.0	8	13	5	12	sw.	George A. Mayes.
Eads.	Kiowa.	4,209	5								0.95		0.70	0	2	20	1	9	se.	Mrs. Mattie A. Kerr.
Fairview.	Custer.	9,500	3								2.30		0.85	23.5	7	7	22	1	e.	Elizabeth L. Grey.
Fremont Experiment Station.	El Paso.	8,850	2	43.4		72	7	17	25	38	1.17		0.71	5.0	8	16	6	8	se.	U. S. Forest Service.
Garfield.	Chaffee.	9,510	2								1.77		0.70	15.0	6	20	4	6	w.	Lloyd N. Felton.
Hamp.	Elbert.	5,400	19																	W. Hamp.
Hermit Lake.	Custer.	10,000	2								1.46		0.93	10.0	6	16	12	2	sw.	John E. Graham.
Hoehne (near).	Las Animas.	5,700	20	58.2	- 4.6	88	1†	30†	21†	42†	1.01	- 0.25	0.70	0	3	19†	3†	7†	w.	S. W. DeBusk.
Holly.	Prowers.	3,380	17	65.8	- 3.1	95	8	33	22	44	1.51	+ 0.18	0.71	0	4	16	5	9	se.	Holly Sugar Co.
La Junta.	Otero.	4,052																		Fred B. Mason.
Lake Moraine.	El Paso.	10,285	18																	Clyde C. McReynolds.
Lamar.	Prowers.	3,592	22	63.2	- 5.9	97	8	30	25	46	2.00	- 0.84	1.08	0	4	21	2	7	s.	J. T. Lawless.
Las Animas.	Bent.	3,899	44																	F. M. Tague.
La Veta Pass.	Costilla.	9,000	2								0.92		0.30	2.0	4	6	13	11	w.	Clara M. Wright.
Leadville.	Lake.	10,248	16	41.3	- 7.2	72	2	16	25	39	1.42	+ 0.51	1.00	14.5	4	16	7	7	w.	U. S. Weather Bureau.
Limon (near).	Elbert.	5,360	5	53.8		87	8	22	25	47	1.37		0.83	T.	3	19	5	6	n.	F. L. Palmer.
Madrid.	Las Animas.		2								0.51		0.42	0	4					Thomas Sawers.
Manitou.	El Paso.																			John Faucher.
Marshall Pass.	Saguache.	10,846	9																	W. L. Williams.
Maxey.	Baca.										0.50		0.50	0	1	17	5	8	sw.	L. H. Albert.
Monument.	El Paso.	7,200	1	48.8		79	7	21	21	44			0.60	11.8	9	11	5	14	sw.	U. S. Forest Service.
North Lake.	Las Animas.	8,700	20								0.37	- 1.04	0.16	0.5	4	23	2	5	nw.	James W. Ingmire.
Pueblo.	Pueblo.	4,734	24	57.4	- 7.0	90	3	28	22	48	0.52	- 0.10	0.40	0	7	15	8	7	se.	U. S. Weather Bureau.
Rocky Ford (near).	Otero.	4,177	23	59.6	- 6.0	92	1	31	22†	47	1.77	+ 1.01	0.94	0	4	20	3	7	e.	P. K. Blinn.
St. Elmo.	Chaffee.	9,500	3								1.71		0.68	18.0	8	22	2	6	sw.	Daniel Clark.
Salida.	do.	7,035	17	50.0	- 7.2	80	2	20	21†	45	1.10	+ 0.04	0.80	7.0	5	26	2	2	w.	M. D. L. Buell.
Santa Clara.	Huerfano.	8,252	17	50.5	- 5.1	80	7	24	21	45	2.79	+ 0.61	1.20	5.5	11	14	11	5		Lincoln G. Morris.
Sheridan Lake.	Kiowa.	4,065	10								0.26		0.14	T.	3	18	3	9	e.	Howard Gamble.
Stonewall.	Las Animas.	8,000	6										0.14	T.	3	18	3	9	e.	G. A. Storz.
Trinidad.	do.	5,994	16	56.6		86	2	29	22	46	1.20	- 0.09	0.80	T.	8	14	8	8		Walter Dearden.
Two Buttes.	Baca.	4,100	1										0.47	0	5	17	5	8	sw.	N. G. Jones.
Two Buttes Reservoir.	do.										0.75		0.50	8.5	2	16†	10†	3†	sw.	W. J. Krohne.
Victor.	Teller.	10,100	8	45.1		66†	1†	21	25	36†	0.72		0.50	8.5	2	16†	10†	3†	w.	Fred Jones.
Vilas.	Baca.	3,935	21								1.52	- 0.02	1.00	0	2	18	4	8	sw.	David Konkel.
Wayne.	El Paso.																			J. C. Groff.
Westcliffe.	Custer.	7,864	18	49.4	- 5.1	81	2	15	21	59	0.57	- 0.72	0.44	4.0	3	17	5	8	sw.	Zack Jordan.
Winfield.	Chaffee.	9,765	2																	John G. Payne.
Woodman Sanatorium.	El Paso.		1	52.7		81	1†	24	21†	38	0.45		0.20	8.0	3	21	5	4	s.	Woodman Sanatorium.
Wortman.	Lake.	11,250	11								0.62	- 0.83	0.30	9.0	3	4	22	4	nw.	George C. Wortman.
<b>New Mexico.</b>																				
Abbott.	Mora.	5,771	3																	Agent E. P. & S. W. R. R.
Albert.	Union.	4,700	22	64.6	- 8.4	94	2	36	24†	40	1.49	- 0.37	0.61	0	4	23	2	5	w.	Andrew Knell.
Aurora.	Colfax.	8,849	3								1.46		1.08	0	7	5	25	0	nw.	Miss J. Lucero.
Bell Ranch.	San Miguel.	4,500	13	64.6		98	2	34	28	45	1.79	+ 0.20	1.10	0	5	15	8	7	sw.	C. M. O'Donel.
Black Lake.	Colfax.	8,348	3								0.85		0.43	0	2	11	18	1	w.	Ralph T. Martinez.
Cabeza.	San Miguel.	5,406	3			88	2†	36	19		1.97		0.99	0	5	14	10	6	ne.	Agent E. P. & S. W. R. R.
Campana.	do.	4,493	3	67.3		94	2†	38	26	42	1.93		1.93	0	2	24	5	1	sw.	Do.
Chacon.	Mora.	9,000	3								3.62		1.54	0	3	9	17	4	w.	Alfredo Lucero.
Cimarron (near).	Colfax.	6,385	8	56.0		84	2	23	26	50	1.14		0.99	0	4	16	6	8	w.	Capt. William French.
Clayton.	Union.	5,178	7																	Dr. W. W. Chilton.
Clovis.	Curry.	4,129	1			97	2	35	27	57	3.72		1.48	0	9	15	15	0	sw.	John H. Barry.
Cuervo.	Guadalupe.	4,849	3	63.0		89	2†	36	29	41	0.93		0.75	0	3	19	1	10	sw.	Agent E. P. & S. W. R. R.
Dawson.	Colfax.	6,396	3	58.6		92	4	30	26	46	0.70		0.50	0	3	5	19	6	nw.	Do.
Elizabethtown.	do.	8,465	7	46.1		76	6	8	23	57	1.06		0.80	0	3	18	10	2	nw.	Miss M. Carrington.
Folsom.	Union.	6,399	12	55.3	- 5.1	85	1†	27	25	45	1.19	- 0.97	0.86	T.	3	18	3	9	sw.	David Rope.
Fort Union.	Mora.	6,835	52	53.4	- 7.2	80	3†	22	22†	48	0.80	- 1.32	0.45	0	4	22	4	4	sw.	M. C. Needham.
Hayden.	Union.	4,444	2	62.4		93	2	33	30	48	1.47		0.63	0	7	13	13	4	sw.	James B. Dickson.
Hoosier Ranch.	Mora.		1								1.40		0.61	0	4	14	14	2	sw.	Wm. H. Guthman.
Johnsons Park.	Colfax.	6,722	3								0.99		0.75	T.	3	17	7	6	sw.	A. J. Meloche, jr.
Johnsons Ranch.	Mora.	5,784									0.92		0.54	0	3	19	10	1		J. W. Johnson.
Kappus.	Quay.	4,010	1								1.49		1.07	0	3					Anthony Kappus.
Lake Alice.	Colfax.	7,160	3																	Jesse Rickman.
Logan.	Quay.	3,851	6	66.3		96	2	31	26	45	0.85		0.55	0	2	22	4	4	sw.	John B. Reneau.
Lykins (near).	Roosevelt.	5,000	2								2.91		1.81	0	5	23	2	5	sw.	J. G. Buchanan.
Maxwell (near).	Colfax.	5,894	5								0.56		0.56	0	1					Dan N. Jackson.
Melrose.	Curry.	4,400	4								2.74		1.28	0	8					Dr. B. M. Porter.
Miami Ranch.	Colfax.	6,000	4	57.4		85	2	22	22	51	0.45		0.42	0	2	19	9	2	w.	Farmers Development Co.
Mills (near).	Mora.	5,985	1								1.13		0.75	0	4	17	3	10	sw.	J. E. LaRue.
Montoya.	Quay.	4,335	3			90	7				0.96		0.59	0	2	18	9	3	sw.	Agent E. P. & S. W. R. R.
Mount Dora (near).	Union.	5,600	1	57.9		88	2	30	25†	45	0.42		0.25	0	2	15	8	7	sw.	Edwd. F. Grygla.
Nara Visa.	Quay.	4,225	6																	George M. Rymal.
Palo Verde.	Mora.	5,880	1								1.58		0.99	0	5	17	9	4	sw.	G. R. Abernathy.
Pasamonte.	Union.		3								0.71		0.34	0	3	21	2	7	sw.	J. J. Heringa.
Pleasant View.	Mora.		1								0.82		0.57	0	3					R. W. Boulware.
Portales.	Roosevelt.	4,004	2	64.8		92	2	36	26	37	3.95		1.12	0	9	11	13	6	se.	Portales Irrigation Co.
Raton.	Colfax.	6,660	14	55.0	- 6.4	86	3	26	25†	43	1.83	+ 0.15	1.45	0	4	19	4	7	w.	Wiseman & Humphrey.
Rocita.	San Miguel.	8,200	8	53.0		79	1	24	18	41	1.89		1.10	0	3	18	10	2	w.	J

TABLE 1.—Climatological data for September, 1912. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.					Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.			
<b>New Mexico—Contd.</b>																				
Tucumcari.....	Quay.....	4,194	7	66.4	.....	95	2	38	25	40	1.16	.....	0.84	0	4	22	6	2	sw.	John F. Seaman. Miss M. L. Payne. C. E. Anderson. H. W. Adams. Guy L. Barnes.
Valley.....	Union.....	5,000	7	63.0	.....	92	10	28	20	49	1.74	.....	1.54	T.	4	13	12	5	s.	
Vance (near).....	do.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1.14	.....	0.58	0	4	17	6	7	sw.	
Vermejo Park.....	Colfax.....	7,600	7	52.6	.....	85	7	21	21	48	0.88	.....	0.43	0	3	14	6	10	nw.	
Wagon Mound (near).....	Mora.....	6,300	3	55.8	.....	85	21	22	22	55	0.44	.....	0.25	0	5	13	13	4	sw.	
<b>Texas.</b>																				
Amarillo.....	Potter.....	3,670	20	64.6	- 3.1	92	2	36	26	35	2.28	- 0.08	1.51	0	6	15	13	2	sw.	U. S. Weather Bureau. Charles H. Thuman. V. V. Bright. H. M. Norman. Canadian Academy. George Baker. A. B. Connor. Whitfield Carhart. J. W. O'Neill. Ft. W. & D. C. Ry. W. D. Griggs. E. B. Wilson. Robert L. Smith. C. K. Brown. A. C. Elliott. Ft. W. & D. C. Ry. J. E. Kinney. Dr. W. J. Joss. S. J. Allen. J. Sid O'Keefe. Robert A. Miller. C. S. Solomon. W. H. Crawford. H. J. Palmer. R. S. Chamberlain. R. A. Gibbs. J. W. Elliott. Ft. W. & D. C. Ry. Lou Mulhall. J. D. Camp. E. F. Mittmann. J. B. Newberry.
Archer City.....	Archer.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1.54	.....	1.12	0	3	19	10	1	s.	
Arthur City.....	Lamar.....	590	20	.....	.....	.....	.....	.....	.....	.....	0.00	- 2.70	0.00	0	0	.....	.....	.....	sw.	
Bonham.....	Fannin.....	566	9	77.7	.....	103	8	43	27	50	T.	.....	0	0	25	4	1	.....	sw.	
Canadian.....	Hemphill.....	2,339	5	.....	.....	.....	.....	.....	.....	.....	4.50	+ 2.43	1.70	0	4	.....	.....	.....	.....	
Childress.....	Childress.....	1,869	19	.....	.....	.....	.....	.....	.....	.....	3.54	.....	2.09	0	8	.....	.....	.....	.....	
Chillicothe.....	Hardeman.....	1,406	4	.....	.....	.....	.....	.....	.....	.....	6.20	.....	2.65	0	8	15	10	5	s.	
Clarendon.....	Donley.....	2,719	7	66.7	.....	96	1	33	26	39	6.20	.....	2.05	0	8	15	10	5	s.	
Clarksville.....	Red River.....	442	12	80.0	+ 1.7	101	9	48	26	33	2.60	- 0.81	1.40	0	2	8	12	0	.....	
Claude.....	Armstrong.....	3,397	7	.....	.....	.....	.....	.....	.....	.....	3.34	.....	2.05	0	5	.....	.....	.....	.....	
Dalhart.....	Dallam.....	3,998	7	62.8	.....	92	1	34	26	37	1.98	.....	1.28	0	7	13	9	8	sw.	
Denison.....	Grayson.....	.....	12	.....	.....	.....	.....	.....	.....	.....	0.90	- 2.03	0.90	0	1	23	3	4	n.	
Finley.....	Bowie.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2.70	.....	2.30	0	2	25	1	4	s.	
Henrietta.....	Clay.....	915	20	76.2	- 1.3	102	8	41	26	39	0.11	- 2.49	0.08	0	2	25	1	4	s.	
Hereford.....	Deaf Smith.....	3,750	7	.....	.....	.....	.....	.....	.....	.....	4.51	.....	1.70	0	6	17	0	13	.....	
Memphis.....	Hall.....	2,067	7	.....	.....	96	1	.....	.....	.....	4.51	.....	1.70	0	6	17	0	13	.....	
Miami.....	Roberts.....	2,743	6	68.2	.....	96	8	31	26	39	1.93	.....	0.81	0	6	17	8	5	s.	
Mobeetie.....	Wheeler.....	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	6	17	8	5	s.	
Ochiltree.....	Ochiltree.....	.....	4	.....	.....	.....	.....	.....	.....	.....	4.35	.....	2.00	0	5	17	8	5	.....	
Panhandle.....	Carson.....	3,450	3	.....	.....	.....	.....	.....	.....	.....	0.98	- 1.55	0.88	0	2	21	5	4	n.	
Paris.....	Lamar.....	592	23	75.2	- 1.8	100	11	46	26	42	0.98	- 1.55	0.88	0	2	21	5	4	n.	
Plemons.....	Hutchinson.....	.....	5	65.6	.....	96	2	31	26	43	1.72	.....	0.78	0	5	18	5	7	s.	
Quanah.....	Hardeman.....	1,563	10	72.7	.....	100	8	39	26	33	3.65	+ 1.57	1.65	0	4	15	3	12	s.	
Ringo Crossing.....	Hopkins.....	.....	2	.....	.....	.....	.....	.....	.....	.....	0.85	.....	0.85	0	1	21	2	7	ne.	
Romero.....	Hartley.....	.....	2	63.8	.....	94	2	31	26	45	2.20	.....	1.04	0	6	10	14	6	sw.	
Sherman.....	Grayson.....	745	19	76.4	+ 0.5	96	7	48	26	26	1.57	- 2.07	1.42	0	2	21	0	9	s.	
Stratford.....	Sherman.....	3,699	.....	65.2	.....	95	2	35	26	39	2.62	.....	1.86	0	8	11	9	10	s.	
Texline.....	Dallam.....	4,694	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	8	11	9	10	s.	
Tulia.....	Swisher.....	3,501	14	65.8	- 3.7	93	9	30	26	40	4.10	+ 1.78	1.05	0	9	13	13	4	s.	
Wellington.....	Collingsworth.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.50	.....	3.00	0	5	.....	.....	.....	.....	
Wichita Falls.....	Wichita.....	958	20	.....	.....	.....	.....	.....	.....	.....	1.57	.....	0.87	0	5	11	17	2	nw.	
Winfield.....	Titus.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	5	11	17	2	nw.	
<b>Kansas.</b>																				
Alden.....	Rice.....	1,684	2	.....	.....	.....	.....	.....	.....	.....	1.97	.....	0.88	0	4	20	0	10	sw.	L. B. Wait. R. H. Beebe. C. W. Carson. O. E. Sanford. C. W. Brown. C. C. Isely. A. F. Briggs. J. L. Stanley. O. E. Skinner. W. R. Padley. E. B. Greene. J. P. Blackledge. W. H. Morton. U. S. Weather Bureau. W. Y. Miller. Martin Musil. W. H. Boyles. Mrs. T. C. Feffer. J. McDaniel. N. B. Swink. B. W. Holmes. B. F. Stocks. I. Pritchard. C. C. Raymond. W. H. Lawyer. Harry Jacques. J. W. Eby. F. A. McCoy. E. S. Webster. F. L. Kenoyer. U. S. Weather Bureau. N. M. Herbig. James Aiken. B. B. Anawalt. Rodney Torrey. C. H. Longstreth. H. H. Wolcott. J. J. Bowman. F. W. Schmitt. Dr. R. T. Nichols. Mrs. Nelia Poling. Ed. F. Haberlein. C. A. David. Jerry Forney. S. P. Garrison. M. L. Rickenbrode. A. P. Reece. H. N. Renfrew. W. H. McMullin. J. K. Barnd. H. A. Brush. N. I. Farris.
Anthony.....	Harper.....	1,329	15	71.2	.....	102	8	31	26	39	4.14	+ 1.76	2.33	0	7	11	12	7	sw.	
Ashland.....	Clark.....	1,951	24	67.6	- 2.3	101	10	30	26	42	2.14	+ 0.09	0.95	0	10	11	13	6	s.	
Burlington.....	Coffey.....	1,010	19	68.0	- 4.6	101	8	31	26	44	2.84	- 1.45	0.99	0	7	2	22	6	s.	
Chanute.....	Neosho.....	940	8	70.0	.....	101	7	32	26	38	2.35	.....	1.00	0	5	7	16	7	s.	
Cimarron.....	Gray.....	2,700	.....	64.6	.....	95	1	29	25	37	2.59	.....	0.90	0	7	17	7	6	s.	
Coffeyville.....	Montgomery.....	747	.....	71.6	.....	104	6	32	26	42	1.55	.....	0.93	0	3	13	8	9	s.	
Coldwater.....	Comanche.....	2,090	15	68.9	- 3.2	98	10	37	25	35	2.50	+ 0.24	0.45	0	8	14	10	6	s.	
Columbus.....	Cherokee.....	898	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	3	12	10	8	se.	
Coolidge.....	Hamilton.....	3,348	15	61.4	- 8.6	98	3	29	23	44	2.35	+ 0.96	1.30	0	3	12	10	8	se.	
Cottonwood Falls.....	Chase.....	1,234	8	68.2	.....	101	6	28	30	40	2.44	.....	1.33	0	8	17	4	9	s.	
Council Grove.....	Morris.....	1,234	3	67.94	.....	100	9	29	30	36	4.37	.....	1.73	0	10	15	3	7	s.	
Cunningham.....	Kingman.....	1,680	28	69.2	- 1.6	103	1	31	26	41	2.55	+ 0.11	0.90	0	6	13	14	3	s.	
Dodge City.....	Ford.....	2,513	38	64.0	- 4.2	95	1	33	25	34	2.75	+ 0.98	0.71	0	6	13	6	11	s.	
El Dorado.....	Butler.....	1,291	10	67.6	.....	98	8	32	26	35	3.35	.....	1.85	0	6	19	4	7	s.	
Ellinwood.....	Barton.....	1,790	37	66.6	- 2.4	99	8	31	30	40	2.25	+ 0.06	1.28	0	7	8	16	6	sw.	
Emporia.....	Lyon.....	1,138	31	67.6	- 0.5	102	6	31	26	41	2.06	- 1.50	0.70	0	8	19	5	6	s.	
Eureka.....	Greenwood.....	1,079	16	68.8	.....	102	10	30	25	43	2.49	- 1.66	0.95	0	7	15	11	4	s.	
Fall River.....	do.....	925	16	.....	.....	102	7	.....	.....	.....	2.57	- 1.79	1.75	0	4	20	6	4	s.	
Fargo.....	Seward.....	.....	2	.....	.....	.....	.....	.....	.....	.....	2.07	.....	1.19	0	7	15	8	7	s.	
Fredonia.....	Wilson.....	975	9	69.6	.....	101	1	34	26	36	3.76	.....	1.10	0	9	18	5	7	s.	
Garden City.....	Finney.....	2,836	23	64.0	- 5.4	100	7	26	27	42	1.04	- 0.74	0.55	0	4	10	12	8	sw.	
Great Bend.....	Barton.....	1,850	3	.....	.....	.....	.....	.....	.....	.....	1.48	.....	0.84	0	3	17	6	7	sw.	
Greensburg.....	Kiowa.....	2,235	5	65.8	.....	96	7	35	25	35	2.89	.....	1.10	0	7	20	2	8	ne.	
Grenola.....	Elk.....	1,116	24	69.6	- 0.7	101	6	30	26	40	1.61	- 1.98	0.98	0	4	15	8	7	sw.	
Hess.....	Gray.....	.....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	8	1	1	1	sw.	
Howard.....	Elk.....	1,112	5	65.2	.....	100	10	31	26	36	1.55	.....	0.79	0	2	18	4	6	sw.	
Hugoton.....	Stevens.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	8	16	5	9	s.	
Hutchinson.....	Reno.....	1,535	22	67.0	- 3.3	99	10	32	26	40	3.89	+ 0.91	1.16	0	8	16	5	9	s.	
Independence.....	Montgomery.....	800	38	70.5	- 1.7	102	7	31	26	41	2.15	- 1.78	1.33	0	4	19	6	5	s.	
Iola.....	Allen.....	984	6	67.6	- 1.0	99	10	32	28	3										

TABLE 1.—Climatological data for September, 1912. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast days.		
<b>Kansas—Continued.</b>																				
Oswego	Labette	899	18	70.2	- 1.8	100	10	35	26	36	1.45	- 1.92	0.89	0	4	18	4	8	sw.	Jas. M. Currihan.
Plains	Meade	2,766	2	66.6	—	96	1†	36	27	36	1.74	—	0.70	0	5	12	14	4	s.	E. J. Henning.
Pratt	Pratt	1,950	17	68.5	- 1.1	106	1	34	26	42	3.17	+ 0.81	1.30	0	6	15	14	1	s.	T. J. Arnold.
Richfield	Morton	1	1	63.4	- 4.8	98	1	27	25	43	0.81	- 1.34	0.49	0	6	15	14	1	s.	M. J. Allen.
Rome	Sumner	1,218	26	69.3	- 1.7	100	6†	30	26	40	4.62	+ 1.95	2.35	0	7	19	5	6	s.	D. M. Adams.
Sedan	Chautauqua	834	27	70.7	- 1.0	102	6†	30	27	45	1.89	+ 1.94	1.07	0	6	18	5	7	s.	A. Y. Buckles.
Toronto	Woodson	1,040	15	69.2	- 0.9	105	6†	31	26†	41	3.62	- 1.76	2.24	0	3	15	6	9	s.	M. A. Webb.
Ulysses	Grant	3,050	21	63.3	- 6.0	98	2	29	25	42	1.92	+ 0.13	0.84	0	5	7	11	12	se.	T. W. Marshall.
Walnut	Crawford	940	10	70.4	- 0.3	102	7†	34†	26	37†	3.60	+ 0.51	1.88	0	—	19†	2†	1†	sw.	R. C. Harlan.
Wellington	Sumner	1,225	16	67.7	- 2.1	97	8	37	30	30	3.36	+ 0.23	1.65	0	7	11	8	11	s.	E. O. Kelly.
Wichita	Sedgwick	1,377	25	69.2	- 1.5	97	8	37	30	30	2.16	- 1.08	1.10	0	8	16	6	8	s.	U. S. Weather Bureau.
Winfield	Cowley	1,124	18	69.2	- 1.5	97	8	32	26	40	2.16	- 1.08	1.10	0	3	23	4	3	s.	M. B. Light.
Yates Center	Woodson	1,068	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. W. Tipton.
<b>Oklahoma.</b>																				
Ada	Pontotoc	1,001	4	73.2	—	100	6†	39	26	39	2.39	—	1.45	0	4	20	6	4	n.	W. S. Creveting.
Alva	Woods	1,350	7	70.0	—	102	8†	32	26	39	4.50	—	2.35	0	4	9	15	6	s.	S. A. Stech.
Apache	Caddo	1,255	2	71.7	—	101	8	31	26	45	1.09	—	0.61	0	5	23	4	3	sw.	G. D. Teeter.
Arapaho	Custer	1,575	18	71.6	- 2.3	102	8	35	26	40	1.27	- 1.57	0.85	0	3	21	4	5	s.	J. C. Brower.
Ardmore	Carter	872	10	75.0	- 1.3	103	8	41	26	36	1.66	- 1.71	0.60	0	3	13	12	5	n.	H. T. Nisbett.
Arnett	Ellis	2,136	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	C. H. Holmes.
Bartlesville	Washington	687	4	71.1	—	104	7†	35	26	39	2.17	—	1.37	0	4	20	4	6	s.	Dr. A. P. Owens.
Beaver	Beaver	2,500	15	64.6†	- 7.1	98	1†	32	—	41†	2.86	+ 0.80	1.24	0	8	17	6	7	s.	W. C. Frazer.
Blackburn	Pawnee	800	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	M. M. Rhodes.
Cache	Comanche	1,350	6	69.0	—	96	7†	32	26	43	2.26	—	2.00	0	2	21	5	4	n.	Mrs. Frank Rush.
Calvin	Hughes	713	7	—	—	—	—	—	—	—	—	—	1.20	0	5	23	0	7	s.	Thomas Purcell.
Chandler	Lincoln	865	10	72.1	- 2.5	101	6†	35	26	40	1.45	- 0.83	0.51	0	5	19	4	7	s.	Chas. L. Kern.
Chattanooga	Comanche	1,150	6	72.2	—	100	8	35	26	42	1.25	—	0.95	0	2	19	7	4	se.	Squire Hubble.
Chickasha	Grady	1,091	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. C. Good.
Cloud Chief	Washita	1,400	10	72.2	- 2.7	102	8	32	26	42	1.70	- 0.63	0.80	0	3	16	7	7	n.	J. P. Stutzman.
Crawford	Roger Mills	—	—	69.2	—	95	4	34	26	38	0.76	—	0.56	0	5	20	4	6	s.	W. W. Blackburn.
Durant	Bryan	643	10	75.0	- 0.5	101	6†	44	26	43	0.16	- 2.42	0.11	0	3	22	5	3	n.	Nelson Houk.
Eldorado	Jackson	1,456	5	72.0	—	101	1	35	26	38	3.85	—	2.46	0	5	16	13	1	se.	T. W. Lanham.
Elk City	Beckham	—	—	69.2	—	97	9	33	26	41	2.50	—	2.10	0	3	15	15	0	s.	R. J. Carlisle.
El Reno	Canadian	1,400	20	72.2	+ 0.2	103	8†	36	26	46	1.55	- 1.45	1.28	0	3	20	3	7	sw.	Rose E. Walker.
Enid	Garfield	1,269	10	72.5	- 1.3	104	7†	35	26	43	3.32	+ 0.29	1.50	0	7	21	2	7	s.	Uri B. Worcester.
Erick	Beckham	2,058	7	70.8	—	102	10	32	26	43	4.53	—	3.93	0	4	15	10	3	s.	A. W. Haines.
Eufaula	McIntosh	566	—	72.6	—	101	7†	34	27	42	0.93	—	0.40	0	4	21	4	5	s.	R. Uhl Brown.
Fairland	Ottawa	839	12	71.8	- 1.4	104	7†	35	26	38	3.30	+ 0.41	1.70	0	5	17	6	7	s.	C. W. Prier.
Fort Gibson	Muskogee	556	7	—	—	—	—	—	—	—	—	—	0.93	0	7	23	2	5	s.	John T. Welsh.
Frederick	Tillman	1,293	5	74.0	—	102	8	34	26	37	2.24	—	1.03	0	4	17	11	2	s.	B. B. Bradley.
Geary	Blaine	1,546	—	72.5	—	101	7†	33	26	40	1.16	—	0.69	0	4	19	6	5	s.	O. P. Ruth.
Goodwell	Texas	3,300	1	65.8	—	94	7†	35	25†	39	2.63	—	1.40	0	9	19	2	9	s.	S. W. Black.
Guthrie	Logan	1,000	19	72.9	- 1.2	103	6†	31	26	42	1.87	- 1.21	0.80	0	3	22	0	8	s.	S. E. Snyder.
Guymon	Texas	3,133	2	—	—	—	—	—	—	—	—	—	1.05	0	8	11	7	12	sw.	A. L. Mordt.
Hartshorne	Pittsburgh	700	13	76.2	- 1.2	102	7†	41	26	45	1.45	- 1.51	0.71	0	4	23	6	1	s.	Frank Webber.
Healdton	Carter	900	18	71.0	- 4.7	103	8	34	26	48	2.52	+ 0.35	1.63	0	3	18	11	1	se.	C. H. Heald.
Helena	Alfalfa	1,396	4	72.4	—	100	—	35	—	43†	1.54	—	0.84	0	6	12†	12†	4†	s.	R. E. Ellis.
Hennessey	Kingfisher	1,166	17	72.2	- 2.4	105	—	35	—	42†	2.35	- 0.52	0.93	0	4	16†	12†	1†	s.	Mrs. M. C. Parks.
Hobart	Kiowa	1,396	9	71.6	—	99	8	41	22†	37	0.88	—	0.43	0	3	11	17	2	s.	Rev. J. E. Black.
Holdenville	Hughes	900	11	73.0	- 0.9	101	7†	38	26	36	1.69	- 2.40	0.70	0	4	22	6	2	n.	Eula L. Rutherford.
Hooker	McIntosh	3,038	6	65.5	—	90	1	30	26	45	1.95	—	1.19	0	6	12	2	16	s.	H. N. Kelly.
Hurley	Cimarron	4,200	4	59.8	—	100	1†	34	25	46	—	—	—	0	—	9	9	12	sw.	Dr. C. W. Meyers.
Idabel	McCurain	474	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	M. L. Henderson.
Jefferson	Grant	1,062	18	68.7	- 4.6	106	1†	31	25	38	1.77	- 1.24	0.76	0	4	18	9	3	n.	T. E. Beck.
Kenton	Cimarron	4,000	11	62.2	- 6.1	93	1†	32	27	46	1.87	+ 0.21	0.80	0	8	18	4	8	s.	Wm. H. Guy.
Kingfisher	Kingfisher	1,046	15	72.2	- 2.4	102	7†	29	26	48	1.55	- 1.65	0.77	0	4	8	16	6	s.	J. C. Cross.
Lawton	Comanche	1,111	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	F. C. Davis.
McAlester	Pittsburgh	698	15	76.4	—	106	7	41	26	40	1.09	- 2.14	0.83	0	4	22	4	4	s.	Wm. Noble.
Mangum	Greer	1,585	19	71.3	- 3.4	102	8	34	26	44	0.75	- 1.61	0.32	0	4	20	3	7	se.	F. D. Dodson.
Marlow	Stephens	1,292	11	72.3	- 1.5	100	6†	39	26†	40	2.17	- 1.37	0.82	0	5	19	3	8	se.	Wm. B. Anthony.
May	Harper	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	G. C. Gray.
Meeker	Lincoln	1,030	18	72.9	- 1.8	103	8	30	26	49	1.24	- 1.30	1.24	0	1	21	1	8	s.	Dr. J. H. Baugh.
Muskogee	Muskogee	614	13	74.2	- 0.2	104	7	37	26	37	2.22	- 0.56	1.30	0	5	20	3	7	n.	J. Harry Randall.
Mutual	Woodward	—	4	70.2	—	103	10	28	26	46	1.29	—	0.50	0	3	17	4	9	s.	Thomas Martin.
Neola	Caddo	1,500	6	71.8	—	102	8	30	26	44	0.72	—	0.48	0	3	18	9	3	se.	R. N. Schooling.
Newkirk	Kay	1,149	14	73.6	- 0.1	104	7†	37	26	38	1.48	- 1.62	0.69	0	3	13	10	7	s.	P. H. Albright & Co.
Norman	Cleveland	1,171	17	71.6	- 3.1	100	8	32	26	42	0.77	- 1.64	0.37	0	4	19	9	2	s.	S. E. Boyd.
North Muskogee	Muskogee	—	—	—	—	—	—	—	—	—	—	—	0.45	0	3	20	0	10	s.	J. E. Walker.
Oakwood	Dewey	1,854	2	70.5	—	100	8	27	26	45	2.15	—	0.87	0	6	17	4	9	s.	Dr. F. P. Osborn.
Okeene	Blaine	1,194	7	71.4	—	101	7†	34	26	37	2.43	—	1.06	0	7	19	7	4	sw.	Dr. L. H. Murdoch.
Okemah	Okfuskee	—	—	73.0	—	103	7†	37	26	35	1.95	—	1.00	0	5	22	2	6	n.	S. F. Smith.
Oklahoma	Oklahoma	1,247	22	70.5	- 1.6	98	8	35	26	35	2.64	- 0.11	1.02	0	7	17	9	4	s.	U. S. Weather Bureau.
Okmulgee	Okmulgee	752	7	74.4	—	104	8	44	22†	44	2.32	—	1.01	0	4	22	2	6	s.	J. L. Maynard.
Pauls Valley	Garvin	880	11																	

TABLE 1.—Climatological data for September, 1912. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<b>Missouri.</b>																					
Belle.....	Maries.....	21	21	70.3	+ 0.1	99	6†	41	19†	35	2.97	- 0.75	1.03	0	4	7	13	7	s.	A. J. Wofford.	
Birchtree.....	Shannon.....	1,200	20	69.8	- 0.1	98	7	40	19†	35	4.19	+ 1.01	1.90	0	4	25	0	5	nw.	V. H. Kirkendall.	
Cardwell.....	Dunklin.....	2	2	72.8	.....	99	5†	41	27	41	2.77	.....	1.65	0	4	19	9	1	nw.	E. M. Perry.	
Caruthersville.....	Pemiscot.....	22	22	76.4	+ 3.7	102	6†	47	27†	35	1.49	- 1.69	0.70	0	4	26	1	3	e.	H. E. Averil.	
Cassville.....	Barry.....	2	2	67.4	.....	100	7	32	26	44	4.30	.....	1.85	0	6	22	4	4	s.	Mrs. Zuma Bloomer.	
Dean.....	McDonald.....	14	14	69.0	- 2.6	102	7	32	26	42	3.97	+ 0.87	1.57	0	6	22	3	7	.....	H. E. Dean.	
Doniphan.....	Ripley.....	440	9	71.0	.....	97	7	41	27†	37	4.84	.....	2.15	0	6	22	1	4	s.	W. W. Martin.	
Gano.....	Dent.....	10	10	71.1	+ 0.4	99	8†	36	30	33	4.70	+ 0.17	1.96	0	7	21	4	5	s.	A. C. Leech.	
Goodland.....	Iron.....	900	8	68.0	.....	101	7	34	27	42	4.86	.....	2.36	0	4	16	8	6	s.	F. M. Adams.	
Hollister.....	Taney.....	1,000	3	70.0	.....	100	7	40	27†	35	3.90	.....	0.85	0	7	16	0	14	ne.	W. P. Chapmann.	
Ironton.....	Iron.....	925	35	68.4	+ 0.7	99	6†	32	27	45	5.75	+ 2.26	2.75	0	5	13	13	4	n.	W. H. Delano.	
Jackson.....	Cape Girardeau.....	458	22	69.7	- 0.1	102	6	40	27	39	3.37	- 0.22	0.97	0	6	18	6	6	n.	L. M. Bean.	
Joplin.....	Jasper.....	979	31	71.1	- 1.5	98	5†	39	26†	42	4.25	+ 0.96	1.80	0	6	16	3	3	ne.	Joplin High School.	
Koshkonong.....	Oregon.....	911	13	72.0	- 0.1	98	6†	42	30	30	2.47	- 0.80	1.05	0	5	18	9	7	s.	J. W. Hitt.	
Lamar.....	Barton.....	964	32	69.4	- 1.0	102	7	35	30	39	2.30	+ 1.83	0.80	0	7	21	2	7	s.	E. H. Adams.	
Marble Hill.....	Bollinger.....	420	21	69.6	- 1.3	102	6†	39	30	38	4.00	+ 0.32	1.25	0	6	18	7	2	se.	A. F. Hendrix.	
Mountaingo.....	Wright.....	1,490	14	68.8	.....	98	7	37	26	32	5.93	+ 2.25	2.95	0	5	20	2	4	se.	Mo. Fruit Exp. Sta.	
Mount Vernon.....	Lawrence.....	1,480	36	70.0	- 1.7	101	7†	35	25	39	2.25	- 0.85	1.12	0	4	23	2	5	sw.	J. R. White & Son.	
Neosho.....	Newton.....	1,023	30	69.0	- 1.4	101	7	32	26	40	3.28	- 0.81	2.28	0	6	22	2	6	se.	W. O. Buck.	
New Madrid.....	New Madrid.....	285	19	.....	.....	.....	.....	.....	.....	.....	2.10	- 1.18	0.90	0	5	23	2	5	se.	Miss Josie Smith.	
Oakfield.....	Franklin.....	793	21	70.7	+ 0.1	102	6†	36	26	33	3.93	- 0.06	2.46	0	5	15	5	5	sw.	E. E. Steines.	
Olden.....	Howell.....	1,246	23	70.8	+ 0.8	99	7†	38	30	35	4.45	+ 0.40	2.75	0	7	19	5	3	sw.	J. D. Evans.	
Rolla.....	Phelps.....	1,139	32	69.0	+ 1.7	97	7†	38	26†	33	5.32	+ 1.52	1.89	0	8	21	2	7	se.	Prof. P. J. Wilkins.	
Springfield.....	Greene.....	1,350	24	68.7	+ 0.8	97	7	39	30	32	4.13	+ 0.37	2.09	0	7	20	5	5	se.	U. S. Weather Bureau.	
<b>Kentucky.</b>																					
Blandville.....	Ballard.....	445	31	72.0	+ 1.0	97	6	43	27†	32	2.79	- 0.19	1.05	0	10	15	12	3	ne.	E. W. Horr.	
<b>Tennessee.</b>																					
Arlington.....	Shelby.....	30	30	72.0	+ 0.4	94	8	45	27†	36	1.84	- 0.52	0.90	0	4	23	1	6	n.	A. Thomas B. Etheridge.	
Bolivar.....	Hardeman.....	450	25	72.8	+ 0.9	94	7†	42	30	34	2.89	- 0.00	1.12	0	6	23	0	7	n.	Miss Mary A. Smith.	
Brownsville.....	Haywood.....	361	27	72.8	+ 0.4	95	6†	43	27	33	2.44	- 0.15	1.45	0	7	22	5	3	ne.	Miss Hattie N. Moses.	
Covington.....	Tipton.....	311	25	72.8	+ 0.2	93	7†	46	27	29	1.68	- 0.95	0.75	0	4	25	0	5	n.	James S. Ruffin.	
Dyersburg.....	Dyer.....	310	29	74.2	+ 1.9	96	3†	44	27	31	2.40	- 0.55	1.70	0	3	24	0	6	ne.	Miss Martha A. Sinclair.	
Jackson.....	Madison.....	450	19	74.8	+ 1.9	102	4†	46	30	42†	.....	.....	.....	0	.....	.....	.....	.....	.....	Shelby A. Robert.	
Kenton.....	Obion.....	325	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	George S. Martin.	
Memphis.....	Shelby.....	409	41	74.2	+ 1.4	94	7	47	30	27	2.05	- 1.00	0.90	0	8	20	5	5	n.	U. S. Weather Bureau.	
Milan.....	Gibson.....	440	29	72.2	+ 0.5	95	8†	44	27	34	1.56	- 1.35	0.95	0	3	20	3	7	s.	Orlando F. Cantwell.	
Trenton.....	do.....	345	29	73.7	+ 2.7	100	7†	39	27	45	1.34	- 1.66	0.65	0	5	26	2	2	sw.	F. L. Dennison.	
Union City.....	Obion.....	360	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	J. S. Kimzey.	
<b>Arkansas.</b>																					
Aliola.....	Lawrence.....	8	8	74.1	+ 1.0	98	6	44	19†	34	3.80	.....	2.00	0	4	26	2	2	nw.	McCullough & Guelck.	
Amity.....	Clark.....	250	20	74.4	.....	100	7	45	23	36	1.55	- 1.23	1.25	0	3	.....	.....	.....	.....	J. W. Campbell.	
Arkadelphia (near).....	do.....	250	5	74.4	.....	96	7	49	23†	32	3.69	.....	1.87	0	4	27	0	3	sw.	J. A. Ross.	
Arkansas City (near).....	Desha.....	145	29	.....	.....	.....	.....	.....	.....	.....	2.59	+ 0.13	1.05	0	4	.....	.....	.....	.....	W. C. Blundell.	
Batesville.....	Independence.....	271	7	.....	.....	.....	.....	.....	.....	.....	2.38	.....	1.30	0	6	.....	.....	.....	.....	Lelia I. Teter.	
Bee Branch.....	Van Buren.....	20	20	75.4	+ 1.6	106	6†	45	23	42	2.25	- 0.79	1.20	0	4	15	12	3	.....	J. E. Scanlan.	
Benton.....	Saline.....	283	5	74.7	.....	102	6†	42	27	46	1.11	.....	0.75	0	2	.....	.....	.....	.....	P. P. Jackson.	
Bentonville.....	Benton.....	1,303	7	69.6	+ 0.7	98	7	37	26	35	2.80	+ 0.67	1.70	0	4	19	6	5	s.	U. S. Weather Bureau.	
Bergman.....	Boone.....	1,324	15	66.9	- 2.1	100	11	32	26†	42	3.71	+ 0.15	1.73	0	3	17	7	6	sw.	John T. Maxey.	
Black Rock.....	Lawrence.....	259	8	.....	.....	.....	.....	.....	.....	.....	4.30	.....	2.95	0	4	.....	.....	.....	.....	S. J. Howe.	
Brinkley.....	Monroe.....	226	26	76.5	+ 3.3	101	5†	43	27	40	5.33	+ 2.74	3.26	0	6	.....	.....	.....	.....	H. L. D. Whitson.	
Calico Rock.....	Izard.....	361	8	.....	.....	.....	.....	.....	.....	.....	2.40	.....	1.70	0	3	.....	.....	.....	.....	W. H. Stoner.	
Camden.....	Ouachita.....	158	27	75.0	+ 0.6	97	6†	48	23†	38	1.63	- 1.72	1.19	0	3	20	4	6	ne.	R. K. Quarterman.	
Centerpoint.....	Howard.....	470	12	77.0	+ 0.3	101	7	48	23	33	1.50	- 3.06	1.10	0	3	21	6	3	sw.	J. M. Huddleston.	
Clarendon.....	Monroe.....	171	8	.....	.....	.....	.....	.....	.....	.....	1.95	.....	0.90	0	6	.....	.....	.....	.....	Mrs. B. E. Bishop.	
Conway.....	Faulkner.....	309	29	74.6	+ 1.3	101	7†	44	27	35	3.56	.....	0.00	1.50	0	7	22	6	2	s.	G. H. Burr.
Corning.....	Clay.....	293	20	72.9	+ 2.0	97	6	42	30	36	2.19	- 1.50	1.10	0	3	15	11	4	s.	Jacob Brobst.	
Dardanelle.....	Yell.....	330	26	73.9	.....	100	6†	41	27	37	3.90	- 0.17	1.68	0	6	.....	.....	.....	.....	A. Bernard.	
Dodd City.....	Marion.....	1,175	31	71.1	- 0.5	100	8	37	27	38	2.14	- 0.62	1.80	0	2	.....	.....	.....	.....	Neal Dodd.	
Dumas.....	Desha.....	1,175	31	71.1	- 0.5	100	8	37	27	38	2.14	- 0.62	1.80	0	2	.....	.....	.....	.....	Lawrence Waterman.	
Dutton.....	Madison.....	10	10	69.9	.....	103	7	32	27	47	4.43	.....	1.97	0	5	19	7	4	s.	J. M. Ricketts.	
Eldorado.....	Union.....	265	8	76.0	.....	99	7	50	30	34	1.75	.....	0.87	0	5	.....	.....	.....	.....	Jeff J. Babb.	
England.....	Lonoke.....	6	6	74.8	.....	98	7†	45	24	42	0.45	.....	0.25	0	2	.....	.....	.....	.....	J. C. Chenault.	
Eureka Springs.....	Carroll.....	1,465	10	73.2	+ 1.3	104	7†	36	26	44	2.53	- 1.31	1.64	0	3	12	13	5	sw.	George W. Nicholds.	
Fayetteville.....	Washington.....	1,451	23	71.6	+ 0.4	100	7†	39	26	36	3.34	- 0.24	1.70	0	5	13	12	5	sw.	University of Arkansas.	
Fordyce.....	Dallas.....	.....	.....	75.6	.....	97	7†	49	27	35	1.65	.....	1.45	0	3	8	15	7	s.	A. Trelick.	
Fort Smith.....	Sebastian.....	481	30	75.1	+ 2.4	101	7	46	27	37	1.88	- 1.29	1.40	0	5	23	3	4	e.	U. S. Weather Bureau.	
Fraziers Turnpike.....	Pulaski.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.32	.....	0.70	0	2	.....	.....	.....	.....	R. E. Brown.	
Fulton.....	Hempstead.....	264	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	.....	.....	.....	.....	.....	B. C. Logan.	
Hardy.....	Sharp.....	643	14	73.4	+ 1.2	103	7	41	27	36	4.01	+ 0.20	3.30	0	5	9	18	3	sw.	C. A. Caywood.	
Helena.....	Phillips.....	182	27	75.4	+ 1.2	100	7	48	30	31	.....	.....	2.40	0	7	.....	.....	.....	.....	B. F. Modisett.	
Hot Springs.....	Garland.....	600	20	77.1	+ 2.4	101	7†	46	23†	39	1.95	- 1.65	0.90	0	5	24	5	1	se.	Army and Navy Gen. Hosp.	
Huttig.....	Union.....	85	5	77.4	.....	99	6†	51	24†	33	1.61										

TABLE 1.—Climatological data for September, 1912. District No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snow fall unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<b>Arkansas—Continued.</b>																				
Subiaco	Logan	1,050	15	76.4	+ 1.6	92	7	44	27	50	1.21	- 1.96	0.70	0	3	19	3	8	s.	New Subiaco Abbey.
Swain	Newton	2,300	1	70.6	.....	94	7†	41	26	25	5.23	.....	2.74	0	4	.....	.....	.....	.....	George Paxton.
Texarkana	Miller	332	28	77.6	+ 1.2	104	7	49	23	37	0.70	- 2.21	0.35	0	3	.....	.....	.....	.....	D. E. Moore.
Warren	Bradley	304	17	76.6	+ 1.0	101	5	49	24†	39	1.70	- 1.74	1.15	0	3	.....	.....	.....	.....	W. J. Savage.
Whitecliffs	Little River	206	8	.....	.....	.....	.....	.....	.....	.....	0.33	.....	0.33	0	1	.....	.....	.....	.....	John E. Payton.
Wiggs	Garland	19	19	73.0	- 0.9	102	6	39	27	41	1.22	- 2.47	0.45	0	5	7	10	3	sw.	S. D. Jester.
Wynne	Cross	250	4	74.8	.....	98	4†	42	27	37	2.08	.....	1.06	0	7	.....	.....	.....	.....	John Seals.
<b>Mississippi.</b>																				
Anguilla	Sharkey	107	4	76.7	.....	95	4†	51	30	31	1.47	.....	0.65	0	4	18	7	5	n.	E. W. Cook.
Austin	Tunica	200	16	74.8	+ 1.1	98	4	47	30	34	3.34	- 0.13	1.42	0	7	23	3	4	n.	H. J. Irvine.
Batesville	Panola	230	25	75.6	+ 2.4	101	8	48	30	38	3.59	+ 0.50	1.55	0	4	21	1	8	nw.	J. M. Cox.
Big Creek	Calhoun	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. P. Havens.
Canton	Madison	228	22	78.2	+ 2.5	98	4†	55	30	30	3.05	+ 0.08	2.05	0	8	8	16	6	ne.	Dr. G. W. Smith-Vaniz.
Charleston	Tallahatchie	2	2	77.4	.....	102	8†	47	30	40	4.18	.....	1.45	0	4	20	3	7	s.	W. B. Burke.
Clarksdale	Coahoma	177	5	74.8	.....	97	8†	46	28	34	2.20	.....	1.47	0	4	20	3	7	n.	A. C. Tuttle.
Cleveland	Bolivar	160	1	.....	.....	.....	.....	.....	.....	.....	0.74	.....	0.65	0	2	28	1	1	.....	W. W. Boone.
Coffeyville	Yalobusha	241	3	.....	.....	.....	.....	.....	.....	.....	2.00	.....	1.02	0	4	16	12	2	s.	C. K. Bailey.
Corinth	Alcorn	470	24	75.0	+ 2.6	98	4†	48	27†	33	3.82	+ 1.01	1.96	0	7	21	3	6	ne.	M. A. Candler.
Crenshaw	Panola	187	3	.....	.....	.....	.....	.....	.....	.....	3.37	.....	0.94	0	9	.....	.....	.....	.....	Mrs. A. L. Fitzgerald.
Duck Hill	Montgomery	13	13	76.6	+ 1.9	100	4	48	30	36	6.52	+ 3.43	2.03	0	7	.....	.....	.....	.....	W. H. Eskridge.
Edwards	Hinds	222	25	79.8	+ 2.9	99	7	56	30	32	1.05	- 2.17	0.80	0	3	28	2	0	nw.	E. F. Farr.
Fayette	Jefferson	270	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	T. L. Darden.
Greenville	Washington	126	25	78.0	+ 2.3	101	5	52	30	33	3.97	+ 0.92	2.57	0	3	23	0	7	ne.	F. L. Harbison.
Greenwood	Leflore	140	12	77.5	+ 2.6	101	4†	50	30	35	3.31	+ 0.16	1.38	0	6	22	1	7	ne.	J. H. Stephen.
Grenada	Grenada	194	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	E. A. Jones.
Hernando	De Soto	391	24	75.1	+ 1.0	97	4	49	27†	35	2.22	.....	0.70	0	6	24	2	4	n.	W. F. Wood.
Hickory Flat	Benton	435	3	.....	.....	.....	.....	.....	.....	.....	5.52	.....	2.00	0	7	20	8	2	sw.	H. Powell.
Holly Springs	Marshall	600	25	73.4	+ 0.3	94	8†	46	30	30	2.84	- 0.53	0.88	0	8	24	2	4	ne.	L. B. Mosby.
Kosciusko	Attala	430	22	76.6	+ 1.6	98	5	52	27	31	2.18	- 0.91	0.80	0	8	18	5	7	n.	E. L. Lucas.
Malone	Marshall	206	3	.....	.....	.....	.....	.....	.....	.....	6.11	.....	1.75	0	9	.....	.....	.....	.....	M. J. Wilkins.
Natchez	Adams	206	24	79.3	+ 1.9	98	10†	60	19†	34	1.66	- 1.78	1.66	0	1	22	0	8	n.	F. L. Garrity.
New Albany	Union	398	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	H. Marshall.
Pontotoc	Pontotoc	475	23	75.2	+ 1.5	96	8	50	30	30	5.77	+ 2.70	4.00	0	6	12	18	0	nw.	Dr. C. W. Bolton.
Port Gibson	Claiborne	116	24	78.0	+ 2.2	98	5†	56	24	34	0.23	- 2.90	0.17	0	3	17	4	9	e.	H. H. Crisler.
Rosedale	Bolivar	143	4	75.0	.....	98	8	40	30	35	1.72	.....	1.20	0	3	22	1	7	sw.	T. J. Murray.
Senatobia	Tate	284	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	C. Brickell.
Shoeco	Madison	11	9	76.5	.....	98	4	52	30	30	2.67	- 0.69	1.51	0	5	21	3	6	ne.	J. C. Pitchford.
Suffolk	Franklin	148	7	79.7	+ 0.9	99	5†	60	19†	30	1.95	- 1.96	1.27	0	5	16	6	8	ne.	Prof. Geo. H. Kent.
Swan Lake	Tallahatchie	130	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	S. D. Robinson.
Tchula	Holmes	502	19	.....	.....	98	8	51	30	.....	3.49	.....	1.27	0	6	4	25	1	s.	Dr. M. P. Winkler.
University	Lafayette	287	8	79.2	.....	98	15	56	30	30	1.13	.....	0.48	0	6	19	4	7	nw.	Prof. J. H. Dorroh.
Utica	Hinds	247	41	77.8	+ 3.0	94	5	55	30	24	0.26	- 3.08	0.13	0	3	17	7	6	n.	Dr. J. B. Dudley.
Wicksburg	Warren	247	23	75.9	+ 1.2	99	8	48	30	30	3.19	- 0.24	0.80	0	6	21	10	3	ne.	U. S. Weather Bureau.
Water Valley	Yalobusha	300	19	79.0	+ 1.8	98	8	60	27	26	0.70	- 2.83	0.29	0	6	21	7	2	nw.	Miss Louie Erikson.
Woodville	Wilkinson	560	18	76.8	+ 0.3	96	4	53	30	30	3.70	+ 0.99	2.40	0	3	22	2	6	ne.	James E. Lee.
Yazoo City	Yazoo	116	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. H. Courts.
<b>Louisiana.</b>																				
Abbeville	Vermilion	18	24	80.1	+ 1.9	98	4	63	25	24	2.28	- 2.00	1.60	0	8	14	8	8	se.	C. J. Edwards.
Alexandria	Rapides	77	24	78.8	+ 1.5	99	4†	61	30	32	1.10	- 1.86	0.75	0	3	17	2	11	n.	Nellie Graham.
Amite	Tangipahoa	130	24	79.8	+ 2.5	99	5	62	24	28	4.22	- 0.55	1.65	0	6	8	22	0	n.	Lulu M. Wentz.
Antioch	Claiborne	1	.....	79.2	.....	101	9	51	30	37	1.68	.....	0.67	0	3	24	0	6	ne.	W. L. Anglin.
Avoca Island	St. Mary	60	24	80.3	+ 2.5	99	5†	64	24†	27	6.63	+ 2.44	2.10	0	8	18	0	12	ne.	J. N. Phar & Sons (Ltd.).
Baton Rouge	East Baton Rouge	20	12	81.0	+ 3.6	100	5	62	24	30	5.47	+ 0.10	4.00	0	5	0	7	23	e.	Elmo M. Bott.
Burnside	Ascension	1	24	82.4	+ 2.1	99	5	70	22	20	17.60	+ 10.84	2.92	0	13	15	6	9	ne.	C. S. McFarland.
Burrwood	Plaquemines	61	2	80.0	.....	98	4†	61	24	29	1.22	.....	0.36	0	5	19	4	7	ne.	Graham Myers.
Cades	St. Martin	180	24	77.2	+ 1.9	99	8	52	24	37	1.65	- 1.61	0.98	0	4	6	11	13	.....	C. E. Smedes.
Calhoun	Ouachita	6	19	77.0	- 2.5	99	12	56	27	34	2.11	- 3.21	0.96	0	5	10	19	1	s.	North Louisiana Exp. Sta.
Cameron	Cameron	7	1	81.3	.....	97	6	66	24	23	4.29	.....	1.25	0	9	21	0	9	.....	Adolph Bruckert.
Carrollton	Orleans	67	24	79.1	+ 2.2	98	10	59	24	34	1.42	- 1.49	0.75	0	3	18	3	9	w.	Loyola College.
Cheneyville	Rapides	113	24	80.3	.....	99	5	60	30	26	3.60	.....	1.80	0	8	17	5	8	.....	Walter I. Tanner.
Cinclare	West Baton Rouge	65	11	77.8	+ 2.0	95	5†	61	24	24	2.85	- 1.12	0.79	0	8	11	15	4	n.	Cinclare Central Factory.
Clinton	East Feliciana	65	11	77.8	+ 1.0	99	3†	49	26	40	1.51	- 1.82	0.60	0	4	15	9	6	s.	John A. White.
Collinston	Morehouse	39	20	81.0	+ 3.2	99	4†	66	24†	28	5.99	+ 1.49	1.54	0	13	17	2	11	s.	John B. Kelly.
Columbia	Caldwell	3	.....	78.8	.....	99	8†	54	24	38	0.58	.....	0.39	0	3	14	14	2	ne.	H. W. Blanks.
Covington	St. Tammany	33	24	82.4	+ 3.6	100	5	65	24†	28	5.65	+ 1.05	2.30	0	7	22	0	8	n.	Cecille P. Champagne.
Dodson	Winn	1	.....	76.0	+ 0.4	97	9	50	30	36	5.86	.....	2.00	0	9	11	19	0	ne.	J. P. Lucas.
Dodsonville	Ascension	177	24	76.0	+ 0.4	97	9	50	30	36	5.86	- 1.89	0.33	0	4	10	12	8	ne.	John F. Park.
Dutchtown	Union	5	.....	80.6	.....	95	3†	62	27	19	0.60	.....	0.50	0	2	.....	.....	.....	.....	Picard & Geismar (Ltd.).
Farmerville	Concordia	10	20	81.6	+ 2.6	99	4†	65	24	26	6.72	+ 0.96	2.22	0	11	10	9	11	ne.	W. P. Chandler.
Ferriday	St. Mary	2	.....	78.8	.....	99	4	63	24	30	4.02	.....	1.80	0	8	8	7	15	.....	C. L. Achor.
Franklin	Washington	302	18	73.5	- 2.6	98	5†	42	23	49	0.42	- 2.79	0.36	0	2	21	3	6	s.	J. M. Bonney.
Grand Cane	De Soto	93	24	80.2	+ 2.6	98	5†	61	27†	29	0.19	- 3.28	0.12	0	3	22	3	5	n.	Herbert R. Babington.
Grand Coteau	St. Landry	.....	.....	79.4	.....	98	8	62	30	26	1.97	.....	1.45	0	3	4	8	18	nw.	G. Foster Provost.
Gueydan	Vermilion	44	20	80.8	+ 3.5	99	5	64												

## Climatological data for September, 1912, district No. 7—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of overcast cloudy days.		
Louisiana—Continued.																				
Monroe.....	Ouachita.....	82	24	77.9	+ 2.2	97	6	54	24†	33	1.57	- 1.39	0.55	0	7	10	5	15	ne.	Kathryn Key.
Morgan City.....	St. Mary.....	14	6								1.60		0.45	0	10	13	4	13	n.	V. E. Kinsey.
Newellton.....	Tensas.....		5																	John D. Fultz.
New Iberia.....	Iberia.....	15	24	80.6	+ 2.6	95	4†	64	24	26	0.75	- 3.74	0.60	0	2	1	15	14	ne.	Mrs. John A. Gebert.
New Orleans (1).....	Orleans.....	51	41	82.0	+ 4.0	98	5	70	30	20	3.84	- 0.97	1.77	0	9	5	15	10	ne.	U. S. Weather Bureau.
New Orleans (2).....	do.....	18	24	81.5	+ 3.3	97	5	64	24	27	4.72	- 1.26	1.42	0	12	2	10	18	s.	Sugar Experiment Station.
Opelousas.....	St. Landry.....	83	20	77.2	- 0.7	93	5†	61	27†	25	2.84	- 0.88	1.31	0	6	14	4	12	n.	Andrew Moresi.
Paradis.....	St. Charles.....		1								1.18		0.35	0	5					R. E. Boyce.
Pearl River.....	St. Tammany.....	29	6								2.54		1.02	0	8	19	3	8	w.	George F. Bancks.
Plain Dealing.....	Bossier.....	268	20	79.2	+ 2.5	101	9	50	24	38	1.81	- 0.88	1.31	0	4	21	7	2	se.	Leon Sanders.
Rayne.....	Arcadia.....	44	20	81.4	+ 3.1	99	10	62	24†	35	0.65	- 3.42	0.20	0	5	24	0	6	n.	A. P. McNeil.
Reserve.....	St. John Baptist.....		11	82.6	+ 4.8	102	5	62	24	28	1.18	- 3.65	0.72	0	5	10	11	9		Leon Godchaux Co. (Ltd.).
Richland Plantation.....	Rapides.....			79.2		98	18	59	27	28	0.88		0.73	0	2	23	1	6	e.	A. B. Fendleton.
Robeline.....	Natchitoches.....	147	16	77.8	+ 2.2	101	9	52	24	42	1.78	- 1.07	1.70	0	2	23	3	4	n.	Ruby Mc. Cook.
Ruston.....	Lincoln.....	312	17	79.2	+ 1.4	100	10	52	30	36	0.38	- 2.60	0.28	0	3	25	0	5	s.	Andor M. Larson.
St. Francisville.....	West Feliciana.....	115	9	81.0		101	5†	63	24†	29	4.28		1.85	0	9	10	5	15	se.	G. W. Newman.
Shrivervort.....	Terrebonne.....	17	20	81.2	+ 2.9	100	4	60	20	34	2.50	- 2.57	0.70	0	7	21	1	8	n.	Harriet F. Riviere.
Simmesport.....	Caddo.....	249	41	77.4	+ 1.7	95	11	55	30	32	1.15	- 2.07	1.15	0	1	22	5	3	ne.	U. S. Weather Bureau.
Southern University Farm.....	Avoyelles.....	42	6								2.38		1.21	0	7				n.	C. T. Leigh.
Sugartown.....	Jefferson.....		15								3.84	- 1.00	0.91	0	11	12	6	12	se.	F. L. St. Martin.
Tallulah.....	Calcasieu.....	19	5	80.5	+ 3.1	95	5†	62	20†	26	0.64	- 2.05	0.46	0	2	0	29	1		G. W. Richardson.
Walker.....	Madison.....	91	5	78.8		96	1†	55	30	26	0.49		0.24	0	3					Neal T. Halt.
Winnboro.....	Livingston.....		2	80.0		98	5	60	30	28	3.84		0.87	0	9	13	17	0	ne.	H. C. Fondren.
	Franklin.....																			J. C. Carlton.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\*Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 7, Lower Mississippi Valley.

[illegible]

TABLE 2.—Daily precipitation for September, 1912. District No. 7—Continued.

[illegible]

TABLE 2.—Daily precipitation for September, 1912. District No. 7—Continued.

Stations.	Watershed.	Day of month.																													Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Oklahoma.</i>																																	
Ada.....	Canadian.....													.40	1.45	.01		.53														2.39	
Alva.....	Arkansas.....			T.			T.					.60	1.15	.13	2.35	T.		.40														4.50	
Apache.....	Red.....		.21											.13	.11			.61	.03													1.09	
Arapaho.....	Washita.....													.27	.15			.85														1.27	
Ardmore [I].....	Red.....													.60	.52	T.			.54													1.66	
Arnett.....	Canadian.....													.45	.33			1.37			T.				.02							2.17	
Bartlesville.....	Arkansas.....													.45	.33			1.37							.02							2.86	
Beaver.....	Canadian.....	.25		.05								T.	.45	.03	1.24	.42	.37	.05														2.26	
Blackburn.....	Arkansas.....													.25	.48	.72		.05	1.20													2.70	
CACHE.....	Red.....													.25	.48	.72		.05	1.20													1.45	
Calvin.....	Canadian.....													.35	.07			.51	.43											.09		1.25	
Chandler [I].....	do.....													.35	.07			.51	.43													1.70	
Chattanooga.....	Red.....	.30											T.	T.				.95														0.76	
Chickasha.....	Washita.....													.75	.15			.80														1.06	
Cloud Chief.....	do.....													.07	.06	.56		.06														0.16	
Crawford.....	Canadian.....				.01									.07	.06	.56		.06														3.85	
Durant [I].....	Red.....													.18	.10	T.		2.46														2.50	
Eldorado.....	do.....	.63	.16											.50	T.	.22		2.10														1.55	
Elk City.....	do.....			T.		T.								.18	T.	.22		2.10														3.32	
El Reno.....	Canadian.....													.18	.09			1.25														4.53	
Enid [I].....	Cimarron.....													.24	.66	.34		1.50	.50													0.93	
Erick.....	Red.....		T.	.04	T.	T.							3.93	.23				.33														3.30	
Epaula.....	Canadian.....													.36				.40														2.84	
Fairland.....	Arkansas.....										.30			.25				1.70	.93	.41					.04							2.24	
Fort Gibson.....	do.....													.42	.20	T.		.72	.93						.08	.05						2.24	
Frederick.....	Red.....	.07												1.02	.12			1.03														1.16	
Geary.....	Canadian.....		T.											.41	.05			1.69														2.63	
Goodwell.....	do.....					.10				.10			1.40	.25	.10	.18	.05	.15	.30													1.87	
Guthrie.....	Cimarron.....													.32	.80			.75														2.13	
Guymon.....	Canadian.....		.07	.03						T.	T.		1.05	.27	T.	.30	.02	.15	.24													1.45	
Hartshorne.....	do.....													.05	.59																	2.52	
Healdton.....	Red.....													.73	.90			.89														1.54	
Helena.....	Cimarron.....			.08			T.							.25	.10	.22		T.	.84							.05						2.35	
Hennessey.....	do.....													.65	.93	.65		.84														0.88	
Hobart.....	Red.....			T.										.43	.11			.84														1.69	
Holdenville [I].....	Canadian.....													.06	.70	.31		.62														1.95	
Hooker.....	do.....			T.	T.					T.			1.19	.23	.01	.23		.16	.13													1.77	
Hurley.....	Cimarron.....													.38	.58			.76														1.87	
Idabel.....	Red.....													.11	.26			.80	.01													1.55	
Jefferson.....	Arkansas.....													.77				.48														1.09	
Kenton.....	Cimarron.....	T.				.02				T.	.35	.21	.11					.80	.01														0.75
Kingfisher.....	do.....													.77				.48			.02											2.17	
Lawton.....	Red.....													.08				.83														1.24	
McAlester.....	Canadian.....													.20	.20			.32														2.22	
Mangum [I].....	Red.....				T.		.03							.20	.20			.32														1.39	
Marlow [I].....	Washita.....													.28	.82			.50	.55													0.72	
May.....	Canadian.....													.28	.82			.50	.55													2.22	
Meeker.....	do.....													.30	.45	.07		1.24														1.39	
Muskogee.....	Arkansas.....													.42	.47			.50														0.72	
Mutual.....	Canadian.....													.12	.12			.48														1.48	
Neola.....	Washita.....													.35	.44			.69														0.77	
Newkirk.....	Arkansas.....													.04	.37			.35														0.95	
Norman.....	Canadian.....													.34	.16			.45														2.15	
North Muskogee.....	Arkansas.....													.87	.32			.04														2.43	
Oakwood.....	Canadian.....		T.	.15	.07									.12	.63			1.00														1.95	
Okeene.....	Cimarron.....			.02										.82	.20	.64	.02	.03	.89													2.32	
Okemah.....	Canadian.....													.21	1.01			.97														1.29	
Oklahoma.....	do.....													.15	.48			.66														2.59	
Okmulgee.....	Washita.....													.67	.42			1.50														2.72	
Pauls Valley.....	Arkansas.....													.94	1.02	.02		.65														0.63	
Pawhuska.....	do.....													.30				.33														1.42	
Perry.....	Red.....		T.	.00										.22	.24	.13		.33	.44													2.03	
Rankin.....	Washita.....													.09	.08			1.85														3.50	
Ravia.....	Canadian.....													.26	.39	.10	.02	1.94	.09													3.59	
Sac and Fox Agency.....	do.....													.82	1.04	.10		1.05	.41													3.59	
Shawnee [I].....	Arkansas.....													.55	.16			1.64														2.33	
Snyder.....	do.....													.40	.38			1.45														3.86	
Stillwater [I].....	do.....													.40	.38			1.45														1.05	
Tulsa [I].....	Cimarron.....		T.	T.										T.	1.11	.08		.05	2.57													2.87	
Vinita.....	Red.....																																

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<b>Missouri—Cont'd.</b>																																	
Oakfield	Meramec								T.					T.	.38		T.	.95			.33	2.13					.14	T.				3.93	
Olden	White									.05				.05		.50		.90			.05	2.75					.15					4.45	
Rolla	Meramec		.66	.05						T.				T.	T.	.87		1.28	.01		.73	1.16					.56					5.32	
Springfield	White		T.							T.				.03	.06		1.09	1.00			1.45				.27	.23						4.13	
<b>Tennessee.</b>																																	
Arlington	Mississippi																.20		.90				.65				.09	T.				1.84	
Bolivar	do						T.							.06	.78	.06		1.12				.78				.09						2.89	
Brownsville	do						T.							.02	.12	.03		1.45				.60				.14	.08					2.44	
Covington	do													T.	T.			.60				.75				.30	.03					1.08	
Dyersburg	do													T.				1.70				T.	.50				.20					2.40	
Jackson	do				T.	.25								.39	.37																		
Kenton	do									.01				.04	.05		.27	.29			.90				.33	.16						2.05	
Memphis	do													T.	.39				.95	T.		.22						T.				1.56	
Milan	do													.27	.39		.19	.10				.65					.13					1.34	
Trenton	do																																
Union City	do																																
<b>Kentucky.</b>																																	
Blandville	Mississippi							.01	.02		.20	.10			.48	1.05		.38				.48	.03			.04						2.79	
<b>Arkansas.</b>																																	

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Mississippi—Cont'd.</i>																																	
Hernando	Yazoo					.10									.02	.70	.50					.55					.40	.05				2.22	
Hickory Flat	do.														1.00	.60	.29	1.25		2.00		.28										5.52	
Holly Springs	do.						.01								.44	.70	.05	.85	.03			.72						.04				2.84	
Kosciusko	Big Black							.05							.22	.21	.32	.35				.80								.15	.08	2.18	
Malone	Yazoo				.41					.14					.30	.84	.57	.17	1.63		1.75	.30										6.11	
Natchez	Mississippi																			1.66		T.					T.					1.66	
New Albany	Yazoo														.45	4.00	T.	.27	.70		.20	.15										5.77	
Pontotoc	do.					T.			T.																							0.00	
Port Gibson	Mississippi		T.						T.		.03									1.20			.03	T.				T.				T.	1.72
Rosedale	Yazoo																										.12						
Senatobia	do.																																2.67
Shoccoe	Big Black					T.	T.								.67		.06	.02	T.			1.51					T.		.41			2.67	
Suffolk	Mississippi													T.		T.			.06			.27				.07			.28	1.27		1.95	
Swan Lake	Yazoo					T.						.72			.28																		3.19
Tchula	do.					T.	.05		T.	.67					.24		1.27		.66				.60										3.49
University	do.																																
Utica	Mississippi						T.									T.	T.		.34	.09		.15	.03				T.			.48	.04	1.13	
Vicksburg	do.	T.														T.	.13			.11		.02					T.					0.26	
Water Valley	Yazoo					T.			T.	.62					.10		.80		.60			.45								.62			3.19
Woodville	Mississippi							.05			T.	.02				.29																	

\* Precipitation included in that of the next measurement.  
 † Separate dates of falls not recorded.  
 ‡ Precipitation for the 24 hours ending on the morning when it is measured.  
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 7, Lower Mississippi Valley.

Date.	Colorado.						New Mexico.				Texas.				Kansas.										Oklahoma.			
	Lamar.		Leadville.		Pueblo.		Albert.		Cimarron.		Amarillo.		Paris. §§		Dodge City.		Ellinwood.		Iola.		Liberal.		Wichita.		Ardmore. §§		Bartlesville.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	96	60	66	37	88	60	93	61	79	53	90	68	93	71	95	71	97	74	97	76	97	70	95	75	97	74	101	75
2.....	91	60	72	36	85	62	94	60	84	55	92	67	90	71	92	70	93	72	96	69	96	67	95	73	97	76	101	74
3.....	95	56	69	41	90	56	91	64	80	45	86	64	89	71	94	69	97	73	94	69	95	67	96	74	97	74	101	74
4.....	95	66	67	36	87	55	92	63	80	44	87	64	91	71	92	69	95	66	94	73	94	69	94	73	96	74	100	74
5.....	95	70	64	35	87	58	90	63	78	40	87	64	94	68	91	70	96	72	95	70	92	67	95	72	99	73	101	70
6.....	92	54	70	31	82	52	89	58	81	40	92	62	90	68	94	63	96	66	98	67	96	61	95	72	101	74	103	70
7.....	96	51	68	35	89	45	92	56	81	42	90	62	98	70	92	65	97	69	98	71	96	61	95	72	101	68	104	70
8.....	97	61	60	33	89	50	93	59	81	40	90	63	99	69	94	66	99	69	98	68	96	64	97	72	103	68	103	70
9.....	90	59	53	30	74	56	91	57	78	40	89	66	98	71	91	70	98	69	98	69	90	65	96	73	101	71	104	70
10.....	80	55	61	24	74	50	92	58	79	41	88	67	98	71	88	68	98	65	99	60	87	64	96	72	101	71	103	72
11.....	72	56	63	33	61	55	86	54	69	53	80	62	100	72	73	64	75	67	85	67	80	61	85	69	100	72	93	73
12.....	73	59	66	35	76	57	86	56	73	54	67	62	97	73	68	62	70	61	88	63	68	60	76	64	100	72	95	68
13.....	77	56	58	34	70	54	76	49	67	47	75	60	90	67	72	58	75	62	72	62	75	60	72	64	98	70	74	68
14.....	70	43	41	19	56	37	75	48	63	44	72	47	96	67	67	58	65	51	74	58	69	49	66	52	82	68	72	69
15.....	56	42	36	18	50	36	78	49	58	38	61	43	91	70	57	46	56	51	70	57	61	45	58	51	72	67	77	60
16.....	69	48	49	17	62	41	76	46	74	45	65	51	70	66	61	45	67	46	66	52	64	45	66	52	79	60	72	59
17.....	75	51	48	22	69	39	72	42	74	37	70	53	91	66	71	48	71	53	71	52	72	53	70	64	84	63	71	59
18.....	77	41	55	25	73	38	75	44	72	34	73	50	85	59	71	40	72	39	65	46	75	42	66	45	78	55	71	51
19.....	88	44	60	30	87	39	71	44	81	31	84	54	86	56	82	53	82	51	81	46	85	53	80	52	84	54	85	49
20.....	71	46	41	18	49	42	69	41	69	39	63	47	89	56	61	46	76	52	66	50	73	49	69	50	86	66	68	53
21.....	68	37	44	14	61	31	70	41	61	29	65	42	71	57	69	39	71	37	70	44	69	40	68	43	75	52	75	48
22.....	75	35	55	19	69	28	77	40	69	26	73	42	83	50	76	43	80	40	78	42	76	40	77	49	81	47	82	45
23.....	80	34	48	26	75	32	81	41	73	21	83	48	81	50	78	48	79	49	78	48	82	44	76	52	83	47	82	48
24.....	65	44	39	20	54	36	72	36	73	36	74	41	92	50	64	40	70	50	79	48	71	49	75	45	91	60	81	50
25.....	60	30	45	16	59	35	73	41	64	26	56	38	59	57	57	33	59	34	56	37	62	34	58	39	66	47	57	44
26.....	70	32	50	22	68	31	73	36	73	23	70	36	72	46	70	36	73	36	67	32	72	34	66	42	75	41	74	35
27.....	80	36	54	28	73	33	75	39	78	33	74	43	76	46	72	42	74	39	74	37	72	40	71	47	79	45	77	40
28.....	67	43	58	24	53	37	71	38	70	34	64	45	85	50	54	43	64	46	69	43	71	40	65	47	83	50	78	42
29.....	55	40	58	22	49	39	70	40	60	38	52	42	83	53	47	43	54	43	52	42	50	42	52	45	76	53	54	50
30.....	70	40	58	20	64	36	73	41	71	37	65	42	76	49	62	39	68	31	63	34	65	43	64	37	72	48	68	43
Mns..	78.2	48.3	55.9	26.7	70.8	44.0	80.4	48.8	73.1	39.0	76.0	53.2	88.4	62.0	74.9	53.2	78.9	54.4	79.7	55.4	78.4	52.6	77.8	57.6	87.9	62.0	84.2	59.1

Date.	Tennessee.				Arkansas.																Mississippi.							
	Kenton.		Memphis.		Bentonville.		Corning.		Dardanelle. §§		Dorado. §§		Fort Smith.		Little Rock.		Pine Bluff. §§		Texarkana. §§		Wynne. §§		Clarksdale. §§		Corinth. §§		Green-ville. §§	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....			89	77	93	73	94	74	95	71	92	72	96	75	90	74	93	73	92	70	95	74	93	74	95	74	96	74
2.....			90	75	94	72	94	73	96	70	92	70	97	73	90	72	94	69	97	69	96	70	93	70	94	71	96	71
3.....			90	77	94	71	95	71	97	70	94	73	99	74	92	74	96	70	97	71	97	72	94	71	95	71	97	72
4.....			92	76	93	69	96	70	98	66	94	70	98	73	93	73	98	69	99	70	98	70	96	70	98	72	99	71
5.....			91	76	94	66	95	68	97	66	96	70	99	72	93	75	98	70	99	71	97	68	96	73	98	72	101	74
6.....			92	77	96	66	97	68	100	63	97	71	100	71	96	73	97	71	101	66	97	81	95	72	95	71	99	76
7.....			94	76	98	63	96	69	100	65	99	72	101	71	95	74	99	71	104	67	97	81	96	72	96	70	100	77
8.....			93	76	97	66	96	70	99	68	98	70	101	71	95	75	99	71	102	67	98	69	97	71	98	70	100	74
9.....			93	76	96	70	95	68	98	70	97	72	97	73	95	74	98	71	103	70	98	69	97	70	97	71	100	72
10.....			92	75	96	68	96	67	99	68	96	70	98	75	93	75	97	71	102	70	99	68	94	69	94	70	98	72
11.....			91	74	94	66	95	67	98	67	97	70	97	73	96	74	98	71	102	70	96	75	95	70	90	68	99	73
12.....			83	68	90	66	87	65	94	67	94	69	94	73	89	72	92	72	97	69	88	71	90	73	90	72	95	75
13.....			85	62	72	63	89	53	92	59	94	60	91	69	89	66	94	65	98	61	93	57	91	60	93	62	96	65
14.....			82	72	86	67	91	62	96	61	94	64	92	70	89	70	93	65	100	63	89	71	85	64	82	65	92	67
15.....			87	70	86	63	93	67	94	70	94	64	93	67	89	71	91	69	89	69	93	66	94	68	90	70	97	72
16.....			84	70	79	62	87	68	88	68	92	69	87	66	88	69	93	69	97	67	88	67	89	69	88	69	89	70
17.....			85	66	72	56	85	65	83	68	94	68	81	63	82	67	92	69	93	66	87	67	89	66	88	64	94	69
18.....			76	62	67	47	76	58	80	60	83	57	76	57	78	63	83	66	88	65	79	65	82	65	89	65	84	67
19.....			75	58	80	45	79	44	82	48	84	56	87	50	78	57	83	53	88	58	78	47	81	52	79	52	84	57
20.....			85	63	74	53	85	60	89	55	91	58	82															

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 7—Continued.

Date.	Mississippi.												Louisiana.																											
	Kosciusko. §§			Natchez. §§			Vicksburg.			Alexandria. §§			Baton Rouge. §§			Covington. §§			Lafayette. §§			Lake Charles. §§			Monroe. §§			New Orleans.			Robline. §§			Schriever.			Shreveport.			
	Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		
1.....	94	73	95	71	91	75	92	75	94	73	94	71	92	72	93	70	94	71	92	77	96	70	95	71	89	73	92	72	92	74	93	72	92	74	93	72	92	74	93	72
2.....	93	70	94	76	93	74	92	70	93	71	96	71	92	73	94	69	94	70	91	78	99	70	93	71	91	72	92	74	93	71	91	72	92	74	93	71	91	72	92	74
3.....	97	69	95	69	92	75	95	70	96	70	98	70	98	70	95	72	95	70	93	77	100	69	96	72	92	74	93	71	93	77	100	69	96	72	92	74	93	71	91	72
4.....	97	69	94	70	93	75	99	71	98	71	99	71	99	71	94	73	98	68	95	71	95	80	100	66	100	73	93	72	93	70	94	73	93	72	93	71	93	72	93	72
5.....	98	70	96	70	94	75	99	72	99	72	99	73	99	71	97	74	100	68	96	73	98	81	99	65	100	74	93	72	93	70	94	73	93	72	93	71	93	72	93	72
6.....	96	71	97	70	93	76	98	72	99	74	98	72	95	75	101	71	97	74	95	75	100	68	98	74	95	76	94	95	76	94	95	76	94	95	76	94	95	76	94	
7.....	97	70	95	72	94	76	97	72	97	73	99	71	95	73	100	72	95	73	94	78	100	68	97	72	95	74	93	72	95	74	93	72	95	74	93	72	95	74	93	
8.....	96	70	97	74	94	78	97	73	98	72	98	72	97	74	98	70	96	74	97	74	98	70	96	74	94	78	95	74	93	72	95	74	93	72	95	74	93	72	95	74
9.....	96	70	96	75	93	78	98	73	97	72	98	72	97	72	94	74	97	68	96	74	94	80	101	68	98	73	95	76	94	95	76	94	95	76	94	95	76	94	95	76
10.....	94	70	97	71	93	78	97	72	97	73	98	72	96	73	98	72	96	74	97	75	101	71	96	73	94	78	99	67	96	74	95	76	94	95	76	94	95	76	94	
11.....	93	68	98	70	91	74	98	70	96	73	95	71	97	72	99	72	98	69	94	71	93	80	97	65	96	74	93	72	95	76	94	95	76	94	95	76	94	95	76	
12.....	94	70	97	70	90	72	98	70	96	72	98	72	97	72	98	71	98	69	93	65	98	78	97	62	94	72	93	72	95	76	94	95	76	94	95	76	94	95	76	
13.....	93	65	98	67	90	66	97	66	95	71	95	72	98	71	99	69	93	65	98	78	97	62	94	72	93	72	95	76	94	95	76	94	95	76	94	95	76	94	95	76
14.....	80	67	94	71	87	73	96	67	94	71	92	73	100	72	90	68	92	71	90	75	99	61	95	75	95	76	94	95	76	94	95	76	94	95	76	94	95	76	94	
15.....	92	69	94	71	91	72	93	70	95	73	92	75	98	73	97	60	93	74	93	77	100	62	97	74	93	77	94	95	76	94	95	76	94	95	76	94	95	76	94	
16.....	90	69	94	70	86	71	96	68	94	70	95	69	97	70	94	66	88	69	91	75	95	64	94	69	89	72	95	76	94	95	76	94	95	76	94	95	76	94		
17.....	92	67	94	69	89	70	95	68	95	71	93	70	100	70	96	67	93	68	92	77	98	65	95	71	92	71	92	71	92	71	92	71	92	71	92	71	92	71	92	
18.....	92	66	95	69	78	68	87	68	90	72	90	72	99	71	96	66	84	68	90	75	99	65	94	70	85	69	91	72	95	76	94	95	76	94	95	76	94	95	76	
19.....	85	60	92	60	84	63	90	64	60	67	89	68	99	68	93	63	86	61	86	74	89	55	95	67	85	62	91	72	95	76	94	95	76	94	95	76	94	95	76	
20.....	89	58	94	64	90	67	94	64	62	67	90	69	93	71	93	64	86	65	88	75	98	57	94	60	83	67	91	72	95	76	94	95	76	94	95	76	94	95	76	
21.....	88	60	95	60	87	70	91	69	93	68	92	70	96	71	86	66	89	68	88	75	89	63	94	70	76	65	91	72	95	76	94	95	76	94	95	76	94	95	76	
22.....	72	64	94	61	72	64	74	66	79	69	83	70	79	69	82	63	78	63	81	71	80	65	90	73	75	59	91	72	95	76	94	95	76	94	95	76	94	95	76	
23.....	81	58	84	60	79	60	86	61	85	65	88	60	87	66	89	62	81	57	82	72	85	55	85	70	79	56	91	72	95	76	94	95	76	94	95	76	94	95	76	
24.....	86	58	82	60	86	63	91	59	89	64	88	66	97	63	81	59	87	54	88	71	94	52	94	62	90	58	91	72	95	76	94	95	76	94	95	76	94	95	76	
25.....	84	59	88	64	84	70	86	60	79	66	80	66	87	63	81	59	87	54	88	71	94	52	94	62	90	58	91	72	95	76	94	95	76	94	95	76	94	95	76	
26.....	73	66	84	65	73	59	70	64	84	60	87	67	88	62	83	62	63	60	82	71	68	63	83	67	61	58	91	72	95	76	94	95	76	94	95	76	94	95	76	
27.....	79	52	84	60	76	57	79	58	78	65	79	68	78	64	78	59	77	57	76	71	75	55	72	70	73	59	91	72	95	76	94	95	76	94	95	76	94	95	76	
28.....	86	66	87	62	83	60	87	58	81	64	89	68	87	63	85	53	86	56	85	71	80	57	87	67	82	58	91	72	95	76	94	95	76	94	95	76	94	95	76	
29.....	78	57	86	60	77	64	80	59	77	68	80	69	79	66	84	63	78	64	79	71	89	60	87	69	77	61	58	91	72	95	76	94	95	76	94	95	76	94	95	76
30.....	76	53	71	60	73	55	79	51	77	64	83	68	79	64	87	62	75	54	77	70	76	56	82	70	72	55	91	72	95	76	94	95	76	94	95	76	94	95	76	
Means.....	88.3	64.8	91.7	66.9	86.5	69.1	91.0	66.7	90.9	69.7	91.8	70.2	92.5	65.7	92.5	65.7	88.8	67.0	88.7	75.4	92.8	62.8	92.2	70.3	87.3	67.6	91.7	66.9	86.5	69.1	91.0	66.7	90.9	69.7	91.8	70.2	92.5	65.7	92.5	

Date.	Oklahoma.												Missouri.												Kentucky.		Tennessee.															
	Enid. §§			McAlester.			Mangum. §§			Muskogee.			Oklahoma.			Weatherford. §§			Woodward.			Caruthersville.			Ironton. §§			Lamar. §§			Olden.			Springfield.			Blandville.			Jackson.		
	Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	
1.....	102	72	98	75	100	67	99	72	94	73	99	74	97	74	96	73	94	66	95	74	94	69	91	72	92	73	92	73	92	73	92	73	92	73	92	73	92	73	92	73	92	73
2.....	101	71	99	75	97	70	99	73	95	73	99	70	95	72	96	72	95	67	97	74	95	74	93	71	92	73	92	73	92	73	92	73	92	73	92	73	92	73	92	73	92	73
3.....	102	70	100	74	98	70	100	75	95	74	99	72	97	72	98	72	96	66	98	70	95	66	98	70	95	66	98	70	95	66	98	70	95	66	98	70	95	66	98	70	95	66
4.....	99	75	99	76	98	68	101	74	94	73	95	70	95	70	98	73	95	66	96	71	94	65	92	70	95	71	102	67	91	72	95	76	94	95	76	94	95	76	94	95	76	

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 8, TEXAS AND RIO GRANDE VALLEY.

BERNARD BUNNEMEYER, District Editor.

## GENERAL SUMMARY.

September was a month of extremes. In the western portion of the district it was the coldest month of that name of record, while in southwestern Texas it was one of the warmest. At many northwestern stations the low temperatures during the current month broke all previous September records. Killing frosts occurred at the higher stations in New Mexico on the 17th and were general over the northern half of that State on the 22d or 23d, which is fully two weeks earlier than usual. There were several periods with unusually high day temperatures, but the nights as a rule were cool. In the Colorado portion freezing temperatures were common at night from the 15th to the close of the month. The amount of sunshine averaged above the normal throughout the district, but the precipitation was generally deficient, except in the middle portions of the Rio Grande and Rio Pecos watersheds and in a few counties in northwestern and southeastern Texas where local excesses occurred. Droughty conditions obtained throughout the month in many localities, and water for stock and domestic use had to be hauled by wagon and train from distant places. The dry weather was favorable for picking cotton but detrimental to fall gardens in eastern Texas. Destructive local wind and hailstorms occurred in Ellis County, Tex., on the 17th and in Coleman County, Tex., on the 19th. Duststorms were numerous in the western portion of the district.

The average number of days with 0.01 inch or more of precipitation was 4 in Colorado and Texas, and 3 in New Mexico. The greatest monthly amount of precipitation in Colorado was 1 inch at Saguache; in New Mexico, 4.20 inches at Newman; and in Texas, 5.75 inches at Plainview. Less than a measurable amount of precipitation occurred at 4 stations in New Mexico and at 11 stations in Texas, while the lowest in the Colorado portion was 0.02 inch at Manassa. Excessive precipitation of 2.50 inches or more in 24 consecutive hours was reported from 5 stations in Texas, the heaviest being 3.25 inches at McGregor on the 17th.

## TEMPERATURE.

The monthly mean temperature was 3.6° below the normal in Colorado, 3° below in New Mexico, and 1.4° above in Texas. Throughout the district the weather was generally warm during the first decade and cool during the last, while the second decade was warm in the southeastern half of the district and cool in the northwestern half. The coldest nights occurred from the 20th

to 26th, while the highest day temperatures were noted on various dates. The cool wave of the 25th-26th was preceded by unusually high temperatures on the 24th. The daily range of temperature varied from 10° on the Texas coast to 42° in the extreme northern portion of the district.

The highest and lowest temperatures reported were, respectively, in Colorado 81° at Saguache on the 4th, and 9° at Hermit on the 21st; in New Mexico, 99° at San Marcial on the 8th, and 12° at Bluewater on the 22d; and in Texas, 109° at Fort McIntosh on the 9th, and 33° at Plainview and Mount Blanco on the 26th. The local monthly means ranged from 40.8° to 53.6° in Colorado; from 49.8° to 70.6° in New Mexico; and from 67.6° to 87.7° in Texas.

## PRECIPITATION.

The average monthly precipitation for the Rio Grande watershed was 0.92 inch, which is only about 50 per cent of the normal amount. Good rains occurred locally in the middle portions of the watershed, the heaviest monthly amount being 4.89 inches at Del Rio, Tex. The deficiency was most marked over a long stretch between Los Lunas and Aspen Grove Ranch, N. Mex., where the monthly amounts averaged only 0.18 inch.

The Rio Pecos watershed received about the normal amount of moisture, the average being 1.96 inches. The rainfall was very unequally distributed, but was heaviest in southern New Mexico.

The Texas watersheds had a decided and general deficiency of precipitation, the shortages ranging from 0.79 inch for the Lavaca watershed to 2.49 inches for that of the Sabine. Moderate excesses occurred over limited areas in the upper and middle portions of the Brazos drainage basin. There were also good local rains over portions of the lower coastal plains. The following are the average monthly amounts in inches and hundredths for the various Texas watersheds: Nueces, 1.67; San Antonio, 1.63; Guadalupe, 0.76; Lavaca, 1.75; Colorado, 1.90; Brazos, 1.40; Trinity, 0.85; Neches, 1.08; Sabine, 0.37; and coastal plains, 1.88.

## RIVER CONDITIONS.

The Rio Grande and Rio Pecos had sufficient water for irrigation purposes and for stock, while the Texas streams were practically at low watermark throughout the month. Slight rises occurred in the middle Brazos during the second decade, and in the lower Colorado during the last decade, but they were swift and of little benefit. The river stages reported from a number of stations were the lowest of record for September.







TABLE 2.—Daily precipitation for September, 1912. District No. 8, Texas and Rio Grande Valley.

[illegible]





TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 8, Texas and Rio Grande Valley.

Date.	New Mexico.										Texas.																	
	Colorado.																											
	Garnett.	San Luis.	Agricultural College.	Carlsbad.	Fort Stanton.	Mountain-air.	Rosedale.	Roswell.	Santa Fe.	Santa Rosa.	Abilene.	Big Springs.	Brownsville.	Corpus Christi.	Del Rio.	El Paso.	Fort McIntosh.	Fort Stockton.	Fort Worth.	Galveston.	Hallettsville.	Houston.	Lufkin.	Palestine.	Plainville.	San Antonio.	Seymour.	Taylor.
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	78	38	75	43	80	64	91	60	75	52	84	51	73	50	88	65	75	55	90	60	95	73	99	72	95	76	88	79
2.....	78	40	78	41	83	63	93	62	75	51	82	51	74	48	90	59	77	50	91	63	95	76	94	70	91	75	87	78
3.....	77	42	73	43	84	60	92	60	80	52	80	50	74	48	89	62	74	52	89	60	94	75	94	69	92	74	86	80
4.....	75	37	73	45	85	63	90	61	80	49	82	48	74	50	86	62	75	54	88	57	94	74	95	70	92	75	86	78
5.....	73	37	71	42	85	64	86	60	80	47	80	45	73	44	89	64	73	51	89	60	93	75	93	69	92	74	85	77
6.....	75	32	76	34	89	55	92	60	82	40	81	46	75	46	90	54	76	49	91	47	95	73	95	69	95	72	90	79
7.....	75	31	76	38	88	58	91	61	83	42	80	48	76	50	90	57	76	54	92	48	96	70	96	65	94	71	91	75
8.....	75	37	74	42	88	58	93	58	80	41	82	44	76	55	91	56	75	55	90	52	96	72	96	66	95	72	87	75
9.....	69	37	70	37	85	59	94	63	78	46	80	46	70	52	90	60	71	48	88	55	96	75	96	71	92	76	88	78
10.....	73	28	71	29	84	55	91	64	80	43	82	38	75	42	86	60	73	46	87	49	96	73	96	74	94	72	87	79
11.....	75	37	73	34	79	65	86	62	70	55	68	48	73	50	76	63	67	56	76	60	97	73	96	74	94	72	90	77
12.....	76	41	70	41	74	61	77	63	70	54	74	52	69	48	72	63	71	53	70	58	94	70	96	76	94	71	93	73
13.....	71	34	70	42	84	56	90	62	71	50	79	50	78	48	80	62	71	51	71	50	89	66	84	68	97	71	93	73
14.....	67	33	72	33	85	52	91	58	74	47	78	48	75	42	84	55	72	45	64	50	91	70	96	65	95	74	90	76
15.....	66	29	69	35	86	50	88	55	77	47	80	44	75	50	70	52	67	41	64	50	73	59	89	61	94	77	86	80
16.....	65	26	64	30	85	58	90	57	76	46	75	48	78	50	71	54	70	49	70	53	81	59	86	61	95	72	87	74
17.....	69	24	68	24	87	56	90	56	80	46	75	45	75	45	85	53	69	45	79	49	94	69	96	71	95	69	88	76
18.....	73	26	72	25	88	54	84	53	78	37	80	30	76	46	79	49	72	42	85	39	80	63	82	61	95	70	89	76
19.....	76	24	76	27	92	49	95	55	79	38	82	32	80	45	90	55	75	46	88	40	96	67	99	61	93	71	89	76
20.....	69	30	68	33	91	52	93	48	75	42	74	44	80	52	70	52	65	44	81	46	83	58	88	58	96	70	90	78
21.....	69	18	59	17	75	53	88	49	60	42	68	33	67	38	65	48	58	35	66	47	71	52	69	45	90	72	86	74
22.....	65	16	68	19	79	46	72	40	72	29	73	28	70	38	74	40	66	33	78	37	79	47	80	40	89	70	88	70
23.....	69	20	65	25	85	44	87	45	74	33	77	40	75	40	85	43	71	39	82	39	85	53	93	58	94	64	84	68
24.....	69	36	67	22	85	46	86	59	77	43	78	51	75	54	87	49	67	46	84	57	98	69	98	64	95	73	86	72
25.....	60	20	68	20	76	50	83	44	71	38	71	26	67	38	64	43	62	32	64	40	71	45	86	47	95	73	86	72
26.....	68	19	70	22	82	44	73	36	74	31	74	40	72	42	75	38	67	38	77	34	74	40	77	37	85	63	85	61
27.....	71	21	73	27	82	45	82	47	77	38	80	32	72	42	78	39	72	40	78	38	78	44	82	37	82	70	83	68
28.....	76	23	75	28	82	46	81	45	77	32	82	38	74	44	81	45	72	46	74	40	84	55	87	57	87	71	84	68
29.....	72	25	75	29	71	50	78	47	70	42	77	42	68	40	58	49	61	44	64	46	77	56	76	57	86	70	80	72
30.....	66	28	71	29	63	56	54	45	49	42	62	40	58	44	54	48	64	43	61	43	66	47	66	47	82	70	75	57
Mns..	71.3	29.6	71.0	31.9	82.7	54.4	86.0	54.5	74.8	43.2	77.3	42.6	73.2	46.0	79.6	53.3	70.1	46.1	79.6*	48.9*	87.0	63.3	89.3	61.3	92.2*	71.5	87.0	74.4

Date.	Texas.																											
	Del Rio.				El Paso.				Fort McIntosh.				Fort Stockton.				Fort Worth.				Galveston.				Hallettsville.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	98	76	78	65	106	77	94	68	96	74	89	81	98	76	89	74	94	72	92	72	90	63	96	75	100	76	96	73
2.....	98	77	83	64	106	77	90	66	95	76	88	82	98	75	88	77	95	70	94	74	92	64	97	75	99	76	95	74
3.....	95	76	88	65	105	78	96	65	95	75	88	82	96	75	92	76	95	70	93	73	87	64	95	76	99	80	94	74
4.....	96	76	89	64	102	73	95	69	93	75	87	81	100	73	90	76	96	68	93	72	88	61	95	76	98	75	94	73
5.....	98	75	86	63	104	77	93	68	95	75	89	81	98	70	94	73	96	69	96	71	91	64	96	73	98	77	96	72
6.....	98	76	89	57	102	77	87	67	97	74	94	78	98	72	96	72	96	69	96	71	90	60	97	74	106	75	97	71
7.....	102	73	87	62	106	76	93	62	99	74	90	80	99	71	95	76	98	70	98	72	92	57	100	73	104	70	98	73
8.....	100	73	90	64	104	88	95	60	98	73	90	78	98	72	95	75	100	70	98	73	92	57	97	74	102	72	97	75
9.....	100	76	87	65	109	77	97	67	96	74	89	80	98	73	93	76	98	71	96	74	94	60	96	75	101	75	95	72
10.....	99	77	85	60	102	77	94	71	97	75	89	79	97	74	95	74	97	68	95	71	97	68	95	71	100	75	96	73
11.....	99	76	77	60	104	76	94	63	97	77	93	79	99	73	96	75	98	71	96	74	92	61	100	75	99	70	98	75
12.....	103	74	72	62	107	77	92	66	95	73	94	80	100	75	95	76	99	70	97	71	78	63	100	76	97	70	98	75
13.....	101	75	85	60	106	77	91	67	97	73	93	81	100	72	98	75	98	70	98	70	85	64	100	75	91	70	99	72
14.....	101	73	85	63	107	76	98	62	87	75	90	79	100	73	97	76	99	71	96	68	85	58	98	74	91	68	99	74
15.....	102	77	86	55	105	79	90	56	94	70	87	76	95	75	88	77	97	71	89	73	68	48	94	77	84	57	92	75
16.....	97	76	89	64	104	77	91	58	84	63	87	75	93	73	92	73	91	68	90	70	62	52	86	70	80	60	90	69
17.....	101	72	85	61	105	74	96	65	90	68	87	77	93	72	94	73	91	73	88	68	75	50	95	71	87	60	89	71
18.....	99	72	88	58	105	75	92	62	81	63	91	80	93	73	91	74	91	73	88	68	75	50	95	71	87	60	89	71
19.....	100	74	91	57	105	74	101	62	77	61	85	80	94	73	93	71	85	60	79	63	88	54	95	75	81	56	94	68
20.....	102	68	91	67	105	69	93	69	91	62	88																	

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 9, COLORADO VALLEY.

FREDERICK H. BRANDENBURG, District Editor.

## GENERAL SUMMARY.

The month was marked by the general absence of the stability in pressure common to September; in fact, conditions resembled those that occur a month later. Low pressure in southern districts predominated, favoring the southward movement of anticyclonic areas, of which a number appeared at short intervals in the north. As the general drift of air was from northerly regions, the weather was unusually cold. The entire district was affected and mean temperatures were the lowest of record for September. Destructive frosts brought the growing season, which was one of the shortest in years, to an abrupt close generally about a month earlier than usual for most crops in the central part of the district, while damaging frosts occurred in New Mexico and freezing weather in the northern half of Arizona, except in the extreme west. Marked departures from the average also occurred in connection with the precipitation, the month having been one of the driest Septembers in many years, thus making the unusual combination of a cold and dry month. In Arizona the average precipitation was the least since 1892. While the dry weather was favorable to the proper curing of grass on the ranges, there was a scarcity of water for stock in localities toward the end of the month.

## TEMPERATURE.

The mean of the 144 stations reporting was 60.6°, or 4.7° below the normal. The mean for September, 1911, was 67.2°. The highest monthly mean was 86.2° at Mohawk Summit, Ariz., and the lowest, 30.8°, at Corona, Colo. The first half of the month in Arizona was colder than the average, the deficiency being marked on a number of days; the latter half, however, was generally somewhat warmer than the normal. In the remainder of the district, except 2 or 3 days, the weather was cold, and daily deficiencies of 10° or more were not uncommon, the deficiency reaching 24° at Grand Junction, Colo., on the 15th. The highest temperatures in Arizona occurred principally on the 18th or 19th, but in the remainder of the district they generally occurred in the first decade. Ninety degrees or higher was recorded at several stations in Utah and New Mexico and at the majority of stations in Arizona. The lowest temperatures occurred generally on the 21st-23d. Freezing occurred at all stations in Wyoming, and at all but one or two stations in Colorado and Utah, and at a number of stations in New Mexico and Arizona. The highest temperature, 110°, occurred at Mohawk Summit, Ariz., on the 13th, and the lowest, 8°, at Corona, Colo., on the 21st.

Details of temperature are summarized in the following table:

Areas of States in district No. 9.	Temperature.					
	Mean.	Departure from normal.	High-est.	Station.	Low-est.	Station.
Western Wyoming.	44.8	-3.6	84	Green River.....	10	Bigpiny.
Western Colorado.	50.0	-6.5	87	At 2 stations.....	8	Corona.
Eastern Utah.....	54.6	-5.5	98	Price.....	10	Strawberry Tunnel (east).
Western New Mexico.	59.9	-4.7	98	Rodeo.....	11	Dulce.
Arizona.....	69.7	-3.7	110	Mohawk Summit..	11	Flagstaff No. 1.
Southeastern Nevada.	65.2	.....	98	Logan.....	28	Caliente.

## PRECIPITATION.

The average for the 207 stations reporting was 0.52 inch, or 0.84 inch below the normal. The average for September, 1911, was 2.25 inches. While there were only 2 days without precipitation, the amounts were small, an inch or more falling only at 11 stations, 5 in New Mexico and 6 in Arizona. The showers occurred principally in the first half of the month, although somewhat general in Colorado on the 23d and 24th, and in Arizona on the 29th and 30th. The greatest monthly amount was 3.91 inches at Corona, Colo., while none occurred at 1 station in western Colorado, 4 in eastern Utah, 7 in western New Mexico, 14 in Arizona, and 2 in southeastern Nevada. No snowfall was reported from New Mexico, Arizona, and southeastern Nevada, but falls of 10 inches or more occurred at 9 stations in Colorado, with the maximum, 23 inches, at Corona.

The average number of days with 0.01 inch or more precipitation was 4 in western Wyoming and western Colorado, 2 in eastern Utah and western New Mexico, 1 in Arizona, and no day in southeastern Nevada.

The average precipitation and departures from the normal on the different watersheds are given in the following table:

## Watershed.

Green.		Grand.		San Juan.		Little Colorado.		Gila.		Mimbres.		Colorado proper.	
Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.	Average.	Departure.
0.81	-0.73	0.89	-0.82	0.33	-1.16	0.25	-0.88	0.43	-0.79	0.73	-1.04	0.17	-0.72

## MISCELLANEOUS.

The average amount of sunshine was from 3 to 8 per cent above the normal. The following are the values: Grand Junction, 79; Durango, 90; Phoenix, 94; and Yuma, 97 per cent.

The relative humidity reported was as follows: Grand Junction, 48; Durango, 52; Phoenix, 34; and Yuma, 40 per cent.





TABLE 1.—Climatological data for September, 1912. District No. 9—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Arizona—Contd.</i>																				
Holbrook.....	Navajo.....	5,069	22	64.6	- 3.1	90	30	31	29†	64	0.00	- 0.84	0.00	0	0	27	1	2	sw.	Thorwald Larson.
Indian Oasis.....	Pima.....	3,000	2								0.85		0.85	0	1	24	1	5	w.	Joseph Menager.
Intake.....	Gila.....	2,230	7								T.	- 1.14	T.	0	0	21	9	0	w.	U. S. Reclamation Service.
Jerome.....	Yavapai.....	4,743	15	70.0	- 2.9	91	19†	50	9	34	0.01	- 1.00	0.01	0	1	23	7	0	w.	Dr. L. A. Hawkins.
Keams Canyon.....	Navajo.....	6,600	7	58.0		81	6†	27	22	47	0.01	- 1.00	0.01	0	0	30	0	0	s.	Fred E. Bartram.
Kingman.....	Mohave.....	3,326	10	71.6	- 1.5	95	20	42	4	45	0.00	- 1.00	0.00	0	2	20	4	6	sw.	Agent A. T. & S. F. Ry.
Lakeside.....	Navajo.....	6,500	15	56.0		79	11	26	21†	46	1.52	- 0.66	1.20	0	2	20	4	6	sw.	Prof. Joseph Peterson.
Lewis Springs.....	Cochise.....	4,029	3								0.19		0.16	0	2	20	5	5	sw.	Agent E. P. & S. W. R. R.
Lowell Observatory.....	Cocconino.....	7,150	2								0.03		0.03	0	1				sw.	Vesto M. Slipper.
McNeal.....	Cochise.....	4,150	2								1.09		0.74	0	2	21		1	sw.	Miles McNeal.
Maricopa.....	Pinal.....	1,186	36	80.3	- 2.4	108	19†	47	27	54	0.00	- 0.54	0.00	0	0	25	5	0	w.	Agent So. Pac. Ry.
Mesa.....	Maricopa.....	1,244	17	74.1	- 7.5	101	17	52	26	45	0.05	- 0.55	0.05	0	1	24	6	0	sw.	C. L. Diehl.
Moenabasin.....	Mohave.....	4,500	13	86.2	- 2.0	110	13	60	5	42	T.	- 0.20	T.	0	0	28	1	1	e.	R. A. Ward.
Mohawk Summit.....	Cochise.....	4,579	3								2.15		1.70	0	2	24	2	4	sw.	Agent So. Pac. Ry.
Natural Bridge.....	Gila.....	4,990	23								T.	- 1.87	T.	0	0	22	8	0	sw.	Agent E. P. & S. W. R. R.
Oracle.....	Pinal.....	4,500	20	71.4	- 2.2	91	19	50	9	31	0.34	- 1.09	0.32	0	2	24	2	4	w.	D. G. Goodfellow.
Osborn.....	Cochise.....	4,676	3								0.68		0.51	0	2	14	8	8	w.	J. W. Lawson.
Paradise.....	do.....	5,435	5	63.0							0.24		0.24	0	1	17	10	3	sw.	Agent E. P. & S. W. Ry.
Parker.....	Yuma.....	3,445	15	76.6	- 6.9	108	18†	45	26	56	T.	- 0.35	T.	0	0	29	0	1	sw.	J. C. Hancock.
Payson.....	Gila.....	5,350	4	61.8		88	19	32	23	52	1.18	- 1.07	1.07	0	3	24	0	6	sw.	M. A. Hancock, M. D.
Phoenix.....	Maricopa.....	1,108	18	78.8	- 2.5	102	18	56	27	40	0.14	- 0.87	0.14	0	2	23	5	2	e.	Mart McDonald.
Phoenix (1).....	do.....	1,092	21	77.2	- 4.2	104	14	49	23†	49	0.10	- 0.52	0.06	0	2	23	5	2	w.	U. S. Weather Bureau.
Phoenix (2).....	do.....	1,189	4	77.5		101	17	53	23†	40	0.08		0.08	0	1	25	0	5	sw.	Geo. Acuff.
Pinal Ranch.....	Pinal.....	4,520	18								0.73	- 1.19	0.71	0	2	28	0	2	sw.	Salt River Valley Nurseries.
Pinto.....	Apache.....	5,660	8								0.26		0.14	0	2	22	4	4	sw.	Irion & Craig.
Prescott.....	Yavapai.....	5,320	29	59.0	- 5.7	86	19	31	22†	49	0.30	- 0.77	0.30	0	1	27	2	1	sw.	Mrs. Celia F. Henning.
Prescott Dry Farm.....	do.....			61.0		89	19	31	22†	51	0.00		0.00	0	0	19	11	0	s.	John W. Flinn, M. D.
Quartzsite.....	Yuma.....	800	5	78.2		105	19	50	22	47	0.06		0.06	0	1	25	4	1	nw.	L. L. Bates.
Redrock.....	Pinal.....	1,864	5								0.08		0.05	0	2				sw.	W. E. Scott.
Rice.....	Gila.....	2,065	5																	A. B. Lee.
Roosevelt.....	do.....	2,175	5																	Arthur Pritchard.
Sacaton.....	Pinal.....	1,280	5	78.3		104	18	40	27	49	0.00		0.00	0	0					U. S. Reclamation Service.
St. Johns.....	Apache.....	5,650	10	59.3		86	7†	23	22	55	0.62	- 0.76	0.46	0	2	19	6	5	sw.	E. W. Hudson.
St. Michaels.....	do.....	6,950	24	56.2	- 2.5	80	18	22	22†	51	T.	- 1.56	T.	0	0	15	13	2	sw.	Alex. Shreve.
Salome.....	Yuma.....	1,875	5	75.0		100	2†	46	14	52	0.07		0.07	0	1	27	2	1	sw.	Rev. A. Weber, O. F. M.
San Simon.....	Cochise.....	3,609	28								0.25	- 0.53	0.15	0	2	15	15	0	sw.	Mrs. M. B. Swartz.
Seligman.....	Yavapai.....	5,219	4	61.9		95	20	50	22†	49	0.13	- 0.16	0.13	0	0	25	0	5	sw.	Agent So. Pac. Ry.
Sentinel.....	Maricopa.....	685	14	76.8	- 9.5	106	20	50	22†	33	0.00		0.00	0	0	27	0	3	sw.	Librarian, A. T. & S. F. Ry.
Silverbell.....	Pima.....	2,650	7	80.6		99	18†	22	21	57	0.23		0.23	0	1	18	11	1	sw.	Agent So. Pac. Ry.
Snowflake.....	Navajo.....	5,644	6	56.3		83	5	22	21	57	0.23		0.23	0	1	18	11	1	sw.	Imperial Copper Co.
Springerville.....	Apache.....	6,862	2	55.6		80	19	22	22	52	0.65		0.50	0	1	28	2	0	sw.	William J. Flake.
Supai.....	Cocconino.....	3,200	6	72.0		97	19	46	22	42	0.05		0.05	0	1	28	2	0	sw.	U. S. Forest Service.
Tempe.....	Maricopa.....	1,165	8	77.6		103	18	49	21	47	0.12		0.07	0	2	25	5	0	sw.	Laura B. Symons.
Thatcher.....	Graham.....	2,800	9	73.4		100	6†	41	21	55	0.33		0.33	0	1	26	4	0	sw.	F. H. Simmons.
Tombstone.....	Cochise.....	4,550	17	73.7	+ 3.6	99	19	49	8	45	0.83	- 0.99	0.46	0	2	24	5	1	sw.	Prof. J. H. Larson.
Truxton.....	Mohave.....	3,997	3	69.1		92	19	46	5	37†	0.10		0.10	0	1	28	1	1	sw.	F. N. Wolcott.
Tuba.....	Cocconino.....	4,500	12	61.9	- 8.0	87	1†	32	22	47	0.03	- 0.57	0.03	0	1	21	5	4	sw.	Truxton Canyon Ind. School.
Tucson.....	Pima.....	2,390	32	76.8	- 3.6	101	19	45	9	45	0.01	- 0.91	0.01	0	1	15	12	3	nw.	Ira E. Bell.
Tucson (1).....	do.....	2,380	4	73.4		102	19	45	9†	52	0.00		0.00	0	0	27	3	0	nw.	University of Arizona.
Tucson (2).....	do.....	2,626	1	75.6		100	19	50	9	44	0.53		0.53	0	1	25	2	3	w.	James F. Record.
Vail.....	do.....	3,421	14	73.2	+ 1.2	97	17	50	2	46	0.35	- 0.24	0.35	0	1	23	5	2	sw.	U. S. Coast & Geodetic Survey.
Walnut Grove.....	Yavapai.....	3,640	20								0.39	- 0.35	0.39	0	1				sw.	Agent So. Pac. Ry.
Wickenburg.....	Maricopa.....	2,072	14	73.0	- 3.9	98	22†	48	5†	48	0.00	- 0.62	0.00	0	0	21	9	0	n.	J. O. Carter.
Willcox.....	Cochise.....	4,164	31	68.8	- 4.0	96	19	42	24	48	0.95	- 0.03	0.45	0	3	25	1	4	s.	Agent S. F. & P. P. Ry.
Williams.....	Cocconino.....	6,750	13	57.0	- 3.4	83	19†	28	27	52	0.00	- 1.88	0.00	0	0	25	5	0	sw.	Agent So. Pac. Ry.
Yarnell.....	Yavapai.....	4,700	13																	E. J. Nordyke.
Yuma.....	Yuma.....	141	33	81.4	- 2.5	108	19	56	5	44	0.00	- 0.16	0.00	0	0	29	1	0	ne.	E. L. Bartholomew.
Yuma (1).....	do.....	150	5	75.1		109	19	46	5†	54	T.		T.	0	0	29	1	0	sw.	U. S. Weather Bureau.
<i>Nevada.</i>																				
Caliente.....	Lincoln.....	4,407	2	57.9		88	1	28	23†	58	0.00		0.00	0	0	26	0	4	ne.	Salt Lake Route.
Logan.....	Clark.....	1,355	5	72.5		98	18	41	22	52	0.00		0.00	0	0	28	2	0	s.	O. W. Jarvis.

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 9, Colorado Valley.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Wyoming.																																
Battle Mountain....	SNAKE.....																															1.08
Bigpinye.....	Green.....								.15	.20	.10	.08			.15										.40							0.40
Daniel.....	do.....						T.	T.	T.	T.		T.			T.	.12								T.	.40							0.60
Eden.....	do.....				T.	.33			T.		.05		.10	T.																		1.17
Green River.....	do.....					.49						.13			.55										.09	.37						1.25
Pinedale.....	do.....				.01				.42	.05	.01		.07	.23																		
Rambler.....	SNAKE.....																															
Willow Creek Cabin.	Green.....	T.			.25					.28	.12	.22		.15	.03										.70		.50					2.25
Colorado.																																
Ashcroft.....	Grand.....								.05	.22		.07			.65	.47	.03							T.	.23							1.72
Breckenridge.....	do.....																															
Buford.....	White.....				.05					.08	.24				.80												.30					1.47
Cascade.....	San Juan.....			.06	T.				.11	.26						.07																0.50
Cedaredge.....	Gunnison.....														.30	.07																0.37
Chromo.....	San Juan.....																															
Cochetopa.....	Gunnison.....			.08								T.			.40											.20						0.68
Collbran.....	Grand.....					.03				.03					.15											.01						0.22
Columbine.....	Yampa.....									.07					.15																	1.33
Columbine Ranch..	Gunnison.....								.35	.20							.60	.40								.12						1.67
Corona    .....	Grand.....			.46						.79			.28	.08	.52	.54		.60	.40							.12		T.				3.91
Cortez.....	San Juan.....																															0.50
Craig.....	Yampa.....														.50																	0.88
Crawford (near).....	Gunnison.....							T.	.01	.01		T.			.64	.11	.11															1.77
Crested Butte.....	do.....				T.				T.	.24					.53	.35								T.	.65							
De Beque.....	Grand.....																															0.15
Delta.....	Gunnison.....														.08	.07																
Dillon.....	Grand.....																															
Durango.....	San Juan.....	.01	.02							.01		T.				.17														T.		0.04
Eureka.....	do.....					.80				.46		T.			.44	.13																1.83
Fraser    .....	Grand.....		T.	.01					.10	.30		.11	.08	.05							.02					.17	.62	T.				1.73
Fruita.....	do.....									.10					.04													T.	T.			0.14
Glade Park.....	do.....				T.	T.				.01					.01											.03						0.05
Gladstone.....	San Juan.....								.04	.21		.10	.02		T.	.25										.03	.12					0.77
Glenw'd Spg's (n'r).....	Grand.....									.05	.02				.12	.05												.10				0.34
Grand Junction.....	do.....									.01					.02																	0.03
Grandlake.....	do.....																															
Grand Valley.....	do.....				T.	.09				T.	T.	.04	T.		.28		.52											T.	.08			0.41
Gunnison.....	Gunnison.....														.08																	0.68
Hesperus (near).....	La Plata.....									T.																						T.
Horsefly.....	Gunnison.....					T.				.08					.97												T.	.22				1.05
Ironton.....	do.....				T.	T.				.27	.42		T.		.02	.44																1.35
Lake City.....	do.....								T.	.12					.03	.46												.19	.04			0.84
Lay.....	Yampa.....				T.	T.				T.	T.				.14																	0.28
Mancos.....	San Juan.....																															24
Marble.....	Grand.....						.07			.18	.06				.88	.26	.04															0.24
Marshall Pass.....	Gunnison.....								.20	.12			.30					.10	.22	.31									.21			1.49
Meeker (near).....	White.....														.44																	1.34
Montrose.....	Gunnison.....										.02				.75	.14																0.94
Nast.....	Grand.....									T.					.19	.24																0.91
Pagoda.....	Yampa.....																															0.58
Pagosa Springs.....	San Juan.....			T.	.03				.08	.01		T.	.09																			0.21
Palisades.....	Grand.....						T.								T.																	T.
Paonia.....	Gunnison.....						T.				.07					.85	.28															1.20
Pitkin.....	do.....			.05										.12	.62																	0.99
Pyramid.....	Yampa.....																															
Rangely.....	White.....																															
Redcliff.....	Grand.....				T.			.01							.51																	1.63
Redvale.....	San Miguel.....					.16									.21																	0.37
Rico.....	Dolores.....																															0.36
Rifle.....	Grand.....						.01					T.	.05		.40																	0.46
River Portal.....	Gunnison.....										.08				.58	.19																0.85
Sapinero (near).....	do.....									T.	.33				.61	.30																1.31
Shoshone.....	Grand.....									.08	.11	.02	.02		.14	.03																0.74
Silverton (near).....	San Juan.....				T.	T.	T.			.52					T.	.03																0.66
Spruce Lodge.....	Grand.....			.05						.05	.52	.10	.20	.12	.06	.20																1.69
Steamboat Springs..	Yampa.....									.55					.38																	1.25
Tacoma.....	San Juan.....										.18																					0.26
Telluride.....	San Miguel.....	.05							.06	.20					.07	.35																0.83
Terminal Dam.....	San Juan.....																															0.00
Uncompahgre Plateau.....	Gunnison.....																															
Yampa (near).....	Yampa.....										.46				.50																	1.66
Utah.																																
Aneth.....	San Juan.....																															0.60
Bluff.....	do.....																															
Boneta.....	Green.....					.05					.03				.25																	0.58
Canaan.....	Colorado.....																															
Castle Dale.....	Green.....										.75	.25																				1.00
Cisco.....	Grand.....																															
Dragon.....	Green.....																															0.14
D																																

TABLE 2.—Daily precipitation for September, 1912. District No. 9—Continued.

[illegible]

TABLE 2.—Daily precipitation for September, 1912. District No. 9—Continued.

Stations.	Watershed.	Day of month.																														Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>Arizona—Contd.</i>																																
Lewis Springs II	San Pedro												.16																	.03	0.19	
Lowell Observatory	L. Colorado				.03																									T.	.03	0.03
McNeal	White											T.									T.								.74	.35	1.09	
Maricopa II	Gila																															0.00
Mesa II	Salt	.05	T.																											T.	T.	0.05
Moccasin	Colorado																															T.
Mohawk Summit	Gila																															T.
Naco	San Pedro																													1.70	.45	2.15
Natural Bridge	Verde																														T.	T.
Oracle	San Pedro	.32	T.																												.51	.17
Osborn	do																															.24
Paradise	Desert						T.														T.											T.
Parker	Colorado																															T.
Payson	Verde	1.07																													.04	.07
Phoenix	Salt	.12	.02																													T.
Phoenix (1)	do	.04	.06																													T.
Phoenix (2)	do	T.	.08																													T.
Pinal Ranch	Gila	.71																														.02
Pinto	L. Colorado	.12	.14																													T.
Prescott	Hassayampa																															.30
Prescott Dry Farm	Verde																															.00
Quartzsite	Colorado																														.06	.06
Redrock	Santa Cruz																														.03	.05
Rice	Gila																															
Roosevelt	Salt																															
Sacaton	Gila																															.00
St. Johns	L. Colorado												.16																		.46	.62
St. Michaels	do		T.							T.																					T.	T.
Salome	Colorado																														.07	.07
San Simon	Gila																													.10	.15	.25
Seligman	Verde								T.																							T.
Sentinel	Gila																														.13	.13
Silverbell	Santa Cruz																															.00
Snowflake	L. Colorado	.23																														.23
Springerville	do												.15																		.50	.65
Supai	Colorado									.05																						.05
Tempe	Salt	.07	.05																												T.	T.
Thatcher	Gila																														.33	.33
Tombstone	San Pedro																														.37	.46
Truxton	Colorado								.10																						T.	.10
Tuba	L. Colorado									.03																						.03
Tucson	Santa Cruz																															.01
Tucson (1)	do																															.00
Tucson (2)	do																															.53
Vail	do																														.35	.35
Walnut Grove	Hassayampa																														.39	.39
Wickenburg	do																															.00
Willcox	Desert	.05																												.45	.45	.95
Williams	Colorado																															.00
Yarnell	Hassayampa																															
Yuma	Colorado																															.00
Yuma (1)	do																														T.	T.
<i>Nevada.</i>																																
Caliente	Colorado																															.00
Logan	do																															.00

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 9, Colorado Valley.

Date.	Wyoming.				Colorado.								Utah.								New Mexico.							
	Daniel.		Green River.		Durango.		Grand Junction.		Gunnison.		Meeker.		Steamboat Springs.		Emery.		Fort Duchesne.		Hite.		Moab.		St. George. §§		Bloomfield.		Fort Bayard.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	66	30	74	45	74	49	82	58	70	37	75	45	75	42	83	43	87	44	90	69	88	62	90	58	83	54	77	54
2.....	71	27	67	41	76	44	86	58	72	35	76	41	77	33	82	45	88	46	92	65	91	59	89	60	83	51	77	55
3.....	72	30	84	44	74	49	84	66	72	37	75	46	76	38	80	42	86	44	90	70	90	66	86	62	83	52	76	53
4.....	65	36	80	48	73	48	84	64	71	35	72	45	76	33	78	36	78	49	87	70	86	66	79	55	84	52	75	50
5.....	63	39	74	32	71	45	74	54	68	37	70	46	67	40	67	30	73	39	82	52	83	45	83	38	82	44	76	50
6.....	70	22	63	29	75	40	85	49	74	31	75	31	77	27	70	33	81	31	89	53	89	43	89	39	86	42	79	50
7.....	65	30	77	41	77	40	85	59	73	32	74	37	76	29	75	30	84	41	90	62	91	60	90	50	87	48	80	53
8.....	53	37	80	46	75	45	82	59	68	30	73	37	78	31	76	31	79	45	85	61	85	59	84	49	84	48	78	53
9.....	61	35	70	39	62	36	71	52	60	32	59	33	69	28	59	33	68	46	74	55	73	47	78	56	72	48	74	48
10.....	63	39	60	34	70	33	70	46	66	22	65	31	70	31	57	35	68	43	80	48	78	42	82	45	82	39	78	48
11.....	51	36	57	38	77	43	78	45	70	24	73	33	74	33	58	32	.....	.....	87	48	86	41	89	46	87	41	77	58
12.....	57	27	67	32	77	45	79	44	68	27	68	31	69	28	59	35	76	34	88	53	86	42	89	44	88	52	74	51
13.....	62	32	65	31	72	39	73	51	73	29	65	30	68	28	56	32	74	35	84	59	81	43	88	46	78	48	79	51
14.....	47	21	66	27	69	43	64	41	58	32	52	30	51	29	58	37	65	25	78	51	76	54	82	46	81	40	77	50
15.....	44	24	54	28	63	40	53	33	59	33	49	30	47	22	62	35	65	26	61	50	55	38	78	58	69	35	78	50
16.....	52	22	49	24	66	35	64	37	55	39	69	25	50	20	61	30	71	27	67	45	68	31	89	45	71	33	79	52
17.....	54	28	58	27	71	29	71	36	63	34	64	25	62	21	60	35	74	28	80	41	80	31	90	39	75	27	81	51
18.....	57	31	67	24	77	32	76	43	68	22	68	24	66	17	61	32	76	29	86	43	82	33	90	40	79	29	83	50
19.....	62	27	70	21	76	34	84	46	65	32	74	30	77	20	62	31	84	35	90	46	90	37	93	40	82	31	85	51
20.....	46	27	53	18	67	36	62	43	55	29	52	23	57	12	63	30	72	33	74	58	70	48	83	53	71	34	83	55
21.....	52	19	70	21	62	26	64	34	54	24	55	15	57	23	61	32	69	24	74	46	71	31	80	42	67	22	78	51
22.....	60	20	53	18	67	24	70	38	65	15	68	19	65	12	62	31	63	23	78	42	79	29	83	33	72	23	73	44
23.....	52	33	43	18	68	29	75	36	56	13	64	35	62	19	58	28	72	34	87	46	80	40	87	36	76	25	77	44
24.....	39	29	58	22	61	33	60	45	50	34	52	33	43	32	57	27	59	30	73	58	71	43	88	48	68	35	77	53
25.....	57	22	60	30	62	28	63	34	56	18	55	18	53	30	60	28	62	30	74	45	71	33	80	40	67	24	77	53
26.....	58	25	66	34	71	26	70	36	61	17	63	24	61	34	59	30	71	27	83	42	80	30	87	33	72	26	79	46
27.....	59	27	64	40	74	31	76	42	64	16	68	24	65	22	60	35	76	28	84	43	85	34	89	35	78	31	77	47
28.....	54	19	69	31	77	33	80	43	70	18	71	26	68	21	61	36	76	31	88	45	88	35	88	37	85	32	76	46
29.....	56	20	64	29	73	40	78	49	69	22	63	23	64	22	60	41	73	28	89	48	87	38	87	44	83	47	72	54
30.....	65	20	62	22	70	37	76	46	67	22	70	23	69	20	62	40	78	31	85	51	85	38	89	45	69	47	63	49
Mns..	57.8	27.8	64.8	31.1	70.9	37.1	74.0	46.2	64.7	27.6	65.9	30.4	65.6	26.6	64.2	33.8	74.1 <sup>a</sup>	34.4	82.3	52.2	80.8	43.3	86.0	45.4	78.1	38.7	77.2	50.7

Date	Arizona.																Logan, Nev.			
	Douglas.		Flagstaff.		Fort Apache. §§		Grand Canyon.		Parker.		Phoenix.		Prescott.		St. Michaels.		Tucson.		Yuma.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	90	66	69	48	79	56	76	34	96	62	92	76	74	53	76	55	92	69	99	68
2.....	92	63	68	54	81	54	74	34	97	64	93	72	74	59	76	50	91	81	98	69
3.....	92	60	66	51	79	53	74	36	94	56	93	73	73	49	73	48	92	66	96	68
4.....	89	56	66	49	77	49	72	36	87	47	87	66	70	51	75	50	91	59	89	61
5.....	89	55	65	36	80	45	70	31	91	55	89	61	72	37	72	44	92	62	93	56
6.....	97	54	70	35	87	46	74	36	93	55	95	63	77	40	77	40	96	58	96	60
7.....	98	57	71	38	85	46	76	40	96	55	95	67	79	42	79	50	100	59	96	60
8.....	90	53	64	36	80	45	72	38	95	55	90	62	71	39	73	55	94	58	90	66
9.....	90	56	58	36	72	42	72	36	92	49	86	61	66	41	68	50	89	51	93	59
10.....	94	54	66	28	85	39	74	36	97	52	90	59	74	35	73	31	94	53	97	61
11.....	94	58	72	31	85	45	72	35	101	52	95	58	80	36	79	43	96	56	101	60
12.....	95	56	74	30	86	49	70	36	103	55	98	61	82	38	76	37	98	65	103	63
13.....	96	58	74	29	86	43	70	34	101	54	96	60	80	38	74	45	95	56	104	60
14.....	95	48	73	37	84	42	70	34	102	60	98	63	79	43	74	38	96	55	102	61
15.....	95	60	67	30	81	42	72	36	104	54	94	69	77	49	70	37	95	64	98	62
16.....	95	53	73	30	81	48	74	38	100	54	97	66	80	39	71	34	96	56	102	66
17.....	97	51	71	36	83	40	72	36	107	53	100	60	80	40	78	29	98	55	106	70
18.....	99	51	75	31	86	40	72	36	108	53	102	65	85	38	80	32	100	55	107	66
19.....	101	52	79	33	87	37	74	36	108	62	101	64	86	41	72	50	101	56	108	68
20.....	99	53	75	36	83	42	73	34	108	60	102	68	76	37	63	27	99	60	108	69
21.....	95	54	61	34	79	38	72	35	98	46	95	66	77	36	65	31	94	61	99	73
22.....	95	52	71	20	81	34	70	36	101	51	93	60	79	30	72	22	97	54	101	68
23.....	93	50	71	30	80	36	68	34	101	60	96	57	78	43	73	34	95	54	101	60
24.....	93	56	71	42	82	40	68	36	101	55	92	64	79	33	69	53	92	58	97	65
25.....	93	61	69	30	79	41	70	36	100	50	92	63	79	35	68	32	92	64	97	66
26.....	92	56	71	26	82	42	72	38	101	45	92	56	79	34	63	22	93	57	101	61
27.....	92	49	73	28	83	37	72	36	101	46	96	60	82	37	78	27	97	53	99	58
28.....	92	48	71	30	83	42	74	36	99	47	96									

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT NO. 10, GREAT BASIN.

ALFRED H. THIESSEN, District Editor.

## GENERAL SUMMARY.

Like September of 1911 the weather during this month was very cool. The mean for the district as a whole was nearly 6° below the normal, and the month was one of the coldest on record. Killing frost occurred in practically every valley in Utah and in the northern half of Nevada. Some damage resulted from frost to alfalfa seed, tomatoes, and other crops.

The precipitation averaged about normal for the district. The first considerable snow fell this month. At Randolph, Utah, near the upper end of Bear Lake, the worst September storm ever known at that place was reported on September 13. Snow fell to a depth of 8 inches, lodging in the grain and making it difficult to harvest, and there was also considerable damage to lucerne.

The average number of rainy days was 3, clear days 18, partly cloudy days 7, and cloudy days 5.

## TEMPERATURE.

The mean temperature for the Great Basin was 54.3°, or 5.7° below normal. The coldest portion of the district was in the northeastern part, and the warmest in the southern half of Nevada and in the more level portions of the Utah area west of the Wasatch Mountains.

The local mean temperatures ranged from 43° at Woodruff, Utah, to 65.4° at Jean, Nev. The greatest departures from the normal occurred in the northern part of the Utah area, and the least in the Oregon and western portion of the Nevada areas. The station reporting the greatest departure was Corinne, Utah, whose mean, 53.6°, was 11.6° below normal.

The following were the highest temperatures that occurred in the various areas of the several States of this district: 78° at Border, Wyo., on the 2d; 79° at Weston, Idaho, on the 2d and 3d; 94° at Iosepa on the 1st and at Low on the 2d, both in Utah; 82° at Cliff, Oreg., on the 18th; 79° at Tahoe, Cal., on the 18th; and 95° at Carlin

on the 1st and at Gardnerville on the 16th, both in Nevada.

The lowest temperatures were: 14° at Cokeville, Wyo., on the 21st; 23° at Weston, Idaho, on the 21st and 25th; 8° at Woodruff, Utah, on the 25th; 14° at Cliff, Oreg., on the 24th; 26° at Tahoe, Cal., on the 4th and other dates; and 8° at Geyser, Nev., on the 20th, 23d, and 30th.

As a rule, the first and last few days of the month were somewhat warmer than the normal, but the temperatures for the greater portion of the month were much lower than the seasonal average. The warmest weather occurred usually on the 1st and 2d, except in the Oregon, California, and western portion of the Nevada areas, where it occurred on or about the 19th. The lowest temperatures were observed from the 20th to the 25th, as a rule, although at a few stations they were observed earlier in the month.

## PRECIPITATION.

The precipitation for the district averaged 0.62 inch, which is about normal. The largest amounts fell, as a rule, on the western slope of the Wasatch Mountains, and the least in the southern half of the Nevada area. As compared with the normal amounts, the precipitation was very irregular, but the greatest deficiencies occurred in the southern half of the district. The largest local monthly amount was 2.40 inches at Meadowville, Utah, while 15 stations reported no rain or only traces.

Most of the rain east of the western border of Utah fell previous to the 15th, but there were a few stations that reported light showers on the 20th, 23d, and 24th. Rain was especially heavy on the 8th, 9th, and 10th in the Utah area, when showers fell at practically every station. In the Oregon, California, and Nevada areas all the rain occurred previous to the 12th. The heaviest snow reported was 21.5 inches at Spooner's Ranch, in the Truckee Basin, at an elevation of 7,700 feet. Good rains and warmer weather, melting the greater portion of the snow, helped out the deficient water supply in that basin.

TABLE I.—Climatological data for September, 1912. District No. 10, Great Basin.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.							Precipitation, in inches.					Sky.					Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
Wyoming.																						
Border	Uinta	6,085	10	46.2	- 4.9	78	2	15	21†	51	1.32	+ 0.28	0.60	10.0	3	18	3	9	w.	S. W. Condron.		
Cokeville	do.	6,204	2	44.8		70	3	14	21	52	0.96		0.60	4.0	6	17	3	10	w.	E. J. Tuckett.		
Evanston	do.	6,860	16	46.4	- 6.2	73	2†	16	21	47	1.16	+ 0.21	0.40	1.0	6	16	10	4	sw.	Frank Tucker.		
Idaho.																						
Geneva	Bear Lake	6,171	4								0.33		0.14	1.0	3	25	4	1		F. W. Boehme.		
Grace	Bannock	5,400	5																	Wm. F. Courtney.		
Paris	Bear Lake	5,946	17	48.0	- 5.8	76	2†	18	21	47	1.61	+ 0.65	0.40	T.	8	19	3	8	w.	John Norton.		
Weston	Oneida	4,460	14	52.2	- 5.4	70	2†	23	21†	46	0.92	+ 0.06	0.59	0	6	21	1	8	s.	Wm. T. Chatterton.		
Utah.																						
Alpine	Utah	4,900	13								0.94	- 0.27	0.72	0	3	22	4	4		T. F. Carlisle.		
Beaver	Beaver	6,000	8	47.8		77	19	18	21	52	0.75		0.46	0	2	13	16	1	nw.	M. J. Shelton.		
Black Rock	Millard	4,872	8	53.6		87	19	17	22	61	0.70		0.70	0	1	17	11	2		W. D. Livingston.		
Burrville	Sevier	6,800	1	48.1		75	2†	17	22	53	0.44		0.35	0	2					F. R. Curtis.		
Castle Rock	Summit	6,244	7								1.20		0.50	0	7	11	10	9	sw.	David Moore.		
Cedar City	Iron	5,750	7	58.2†		82	19	28	21†	40	0.93			0	2	19	7	4	sw.	Parley Dalley.		
Center	Tooele	4,250	9	52.7		84	1	19	25	51	0.73		0.59	0	2	17	5	8	n.	L. C. Peterson.		
Clarkston	Cache	5,930									0.38		0.33	0	2	24	3	3		W. J. Griffiths.		
Corinne	Boxelder	4,240	42	53.6	-11.6	86	1	26	27	47	T.	- 0.69	T.	0	0	14	8	8		A. C. Murphy.		
Deseret	Millard	4,541	17	55.0	- 5.5	85	1	25	25	49	1.00	+ 0.16	1.00	0	1	24	2	4	n.	S. W. Western.		
Elberta	Utah	4,650	10	57.0		86	2	29	25	45	0.39		0.29	0	4	21	5	4	n.	D. C. Walkey.		
Erekson	Tooele	4,850									0.66		0.51	0	3					N. W. Erekson.		
Enterprise	Washington	5,750	6								0.00		0.00	0	0	20	4	6	s.	John Day.		
Fairfield	Utah	4,866	1																	W. Harden Ashby.		
Farmington	Davis	4,267	11	55.2	- 4.8	84	2	30	21†	37	0.41	- 0.70	0.35	0	2	22	5	3	sw.	Charles Boylin.		
Fillmore	Millard	5,100	20	58.4	- 6.8	89	6	31	21†	47	1.47	+ 0.20	1.30	0	4					J. J. Starley.		
Garrison	do.	4,850	9										T.	0	0					E. M. Smith.		
Government Creek	Tooele	5,277	11	54.2	- 7.2	82	6	26	20	42	0.86	- 0.09	0.69	0	3	19†	4†	6†	n.	Walter James.		
Granger	Salt Lake	4,560				83	4	30	21	45	0.85		0.40	0	3					Geo. E. Greene.		
Grantsville	Tooele	4,220	1								0.61		0.50	0	3	19	7	4	s.	J. C. Woodmansee.		
Grouse Creek	Boxelder	5,148	4								0.58		0.41	0	3	19	6	5	s.	Philip Paskett.		
Heber	Wasatch	5,593	19	50.5	- 4.9	78	1†	20	21†	53	1.57	+ 0.53	0.80	0	5	18	5	7	s.	John Crook.		
Henefer	Summit	5,301	12	49.4	- 5.6	80	2†	18	21†	53	1.15	+ 0.01	0.82	0	6	15	7	8	nw.	William Brewer.		
Hooper	Weber	4,436									0.56		0.56	0	1					T. M. Jones, jr.		
Ibapah (near)	Tooele	7,500	8																	J. S. Lawton.		
Ibex	Millard	5,250	1																	John J. Watson.		
Josepa	do.	4,356	1	57.6		94	1	24	15†	45	T.		T.	0	0	9	12	9	n.	Geo. K. Hubbell.		
Joy	Junab.	5,000																		A. M. Laird.		
Junction	Piute	6,000																		Joseph Jensen.		
Kaneoh	Millard	5,250	2								1.81		1.00	0	4					Geo. Crane.		
Kelton	Boxelder	4,230	32	51.2	- 9.8	75	7	27	16†	41	0.46	+ 0.07	0.18	0	3	6	24	0	sw.	F. W. Klock.		
Lemay	do.	4,221	1	64.8		83	5	47	14	28	0.00		0	0	0	18	12	0		Agent S. P. Co.		
Levan	Junab.	5,010	22	53.8	- 6.4	83	2	27	15	37	0.94	- 0.35	0.85	0	2	20	3	7	sw.	William Brown.		
Logan	Cache	4,507	21	53.6	- 7.9	78	2	29	25	32	0.54	- 0.57	0.19	0	6					Utah Exp. Station.		
Low	Tooele	4,602									0.50		0.30	0	2	12	15	3	n.	Agent W. P. Ry. Co.		
Lucin	Boxelder	4,504	5	64.1		84	1	48	30	28	0.07		0.07	0	1					C. C. Herrington.		
Lund	Iron	5,086	3																	Job F. Hall.		
Manti	Sanpete	5,575	17	53.2	- 6.3	79	2†	25	22	45	1.24	- 0.02	1.04	0	3	14	0	16		J. M. Anderson.		
Maple Creek	Utah	4,850									0.96		0.74	T.	4	19	4	7		Lewis W. Gillilan.		
Marion	Summit	6,400	7								1.66		0.84	1.0	8	13	5	12	nw.	Jas. Woolstenhulme.		
Marysville	Piute	6,076	12																	John W. Henry.		
Meadowville	Rich.	6,200	11	49.0	- 5.2	77	2	24	21	44	2.40	+ 1.28	1.35	1.5	4	21	2	7	w.	J. S. Moffat.		
Midlake	Boxelder	4,235	1	59.8		78	1	45	24	17	T.		T.	0	0	19	2	9	n.	Agent S. P. Co.		
Midvale	Salt Lake	4,365									1.07		0.49	0	8	17	8	5	s.	M. J. Joy.		
Millford	Beaver	4,962	4	56.0		82	1†	28	26	48	0.50			0	2	13	17	0	sw.	Agent Salt Lake Route.		
Mills	Junab.	4,911	17								1.11		1.04	0	4					Geo. McCune.		
Millville	Cache	4,848									0.55	- 0.64	0.27	0	6	9	20	1	n.	Fred Yeates.		
Minersville	Beaver	5,070	8																	George Roberts, sr.		
Modena	Iron	5,479	11	54.3	- 5.9	84	19	24	22	51	0.06	- 1.06	0.06	T.	1	22	5	3	w.	U. S. Weather Bureau.		
Morgan	Morgan	5,068	7	51.8		83	2	23	21†	50	1.24		1.09	0	2					E. C. Kingston.		
Moroni	Sanpete	5,519	4	53.9†		80	2	28	25	39	0.87		0.68	0	3	15†	5†	6†	sw.	B. F. Eliason.		
Mosida	Utah	4,510																		R. F. Curtis.		
Nephi (near)	Junab.	5,119	7																	S. Boswell.		
Newcastle	Iron	5,150	1																	T. W. Jones.		
Oak City	Millard	4,900	5	56.8		85	2	30	20†	45	1.08		1.05	0	3	16	11	3		Peter Nielson.		
Ogden	Weber	4,310	41																	A. Van DeGraff.		
Panguitch	Garfield	6,560		48.0		78	19	14	22	57	0.13		0.13	0	1	23	3	4		John N. Henrie.		
Park City	Summit	7,800	7	50.8		84	27	23	5	52	0.55		0.12	0	8	5	15	10		Gertrude Evans.		
Park Valley	Boxelder	5,200	1								0.36		0.23	0	2	17	2	11	nw.	A. O. Evans.		
Parowan	Iron	5,970	21	54.6†	- 4.7	81	19	28	21	40	0.31	- 0.79	0.31	0	1	17†	1†	11†		Alex. Matheson.		
Payson	Utah	4,637	8								0.60		0.48	0	5	17	9	4	ne.	D. L. Coombs.		
Pelican Point	do.	4,600	1																	B. M. Mendenhall.		
Pine Cliff Ranch	Summit	8,250	1	47.2		74	12	19	21	43	1.64		0.55	0	5					L. E. Leavitt.		
Pinto	Washington	5,907	14																	J. H. Harrison.		
Plentiful	Tooele	4,262																		C. L. Drumm.		
Promontory	Boxelder	4,913	33								0.10	- 0.49	0.10	0	1					F. C. Houghton.		
Provo	Utah	4,532	23	54.0	- 6.9	87	2	23	22	53	1.25	+ 0.57	0.75	0	4	15	13	2	n.	James A. Oliver.		
Randolph	Rich.	6,442	10																	Wm. Rex.		
Rever	Salt Lake	5,066	1																			

TABLE 1.—Climatological data for September, 1912. District No. 10—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>Utah—Continued.</i>																				
Vernon.....	Tooele.....	5,500									0.73		0.45	0	3	16	5	9	nw.	Glynn Bennion.
Wendover.....	do.....	4,237		61.3		89	5	39	20	44	0.18		0.10	0	2	8	18	4	nw.	J. S. Cooper.
Whisky Creek.....	Millard.....	4,850									0.90		0.90	0	1					George Stevens.
Winder.....	Garfield.....	7,000																		
Woodruff.....	Rich.....	6,500	10	43.0 <sup>a</sup>		75	3	8	25	58	0.70	+ 0.42	0.30	2.0	5	19	6	5		A. L. Eastman.
<i>Oregon.</i>																				
Burns.....	Harney.....	4,157	21																	J. C. Welcome, Jr.
Cliff.....	Lake.....	4,300	5	48.0		82	18	14	24	59	0.58		0.24	0	5	16	10	4	nw.	John C. Green.
Paisley.....	do.....	4,500	9																	E. C. Woodward.
Silver Lake.....	do.....	4,700	15	53.2	- 0.4	82	26	23	14 <sup>†</sup>	52	0.46	- 0.17	0.31	0	2	21	7	2	n.	G. W. Marvin
<i>California.</i>																				
Tahoe.....	Placer.....	6,240	2	49.3		79	18	26	4 <sup>†</sup>	42	2.00		1.65	0	3	24	1	5	w.	R. M. Watson.
Truckee.....	Nevada.....	5,819	41	50.6	- 5.3	79	20	27	4 <sup>†</sup>	43	1.50	+ 1.20	1.50	T.	1	14	7	9	sw.	Southern Pacific Co.
<i>Nevada.</i>																				
Austin.....	Lander.....	6,594	23	55.4	- 3.6	85	17 <sup>†</sup>	27	4	46				4.0		21	4	5	n.	F. O. Booe.
Battle Mountain.....	do.....	4,843	41	56.7	- 5.8	92	1	22	21	62	0.20	- 0.09	0.20	0	1	27	1	2	nw.	Southern Pacific Co.
Beowawe.....	Eureka.....	4,905	41	52.8	- 8.4	83	28 <sup>†</sup>	21	17	57	0.41	+ 0.13	0.34	T.	3	18	8	4	w.	Do.
Carlin.....	Elko.....	5,232	41	53.8	- 4.3	95	1	14	24	70	0.28	+ 0.06	0.28	0	1	28	0	2		Do.
Carson Dam.....	Churchill.....	4,032	5	58.2		86	19	31	25	43	0.30		0.26	0	2	21	3	6	w.	U. S. Reclamation Service.
Cherry Creek.....	White Pine.....	6,450	4	53.2		80	2	26	5	44	0.42		0.42	0	1	18	8	4	w.	J. H. Leishman.
Clover Valley.....	Elko.....	6,000	11	57.0	- 0.8	84	30	28	25	44	0.52	- 0.01	0.21	0	1	17	6	7	w.	I. F. Wiseman.
Columbia.....	Esmeralda.....	5,750	5	58.8		86	19	31	4	42	0.10		0.04	0	3	23	7	0	nw.	A. Booth.
Dry Farm.....	Elko.....	5,600	0	54.8		79	29	27	21 <sup>†</sup>	43	0.00		0.00	0	0					Walfrid Sohlman.
Elko.....	do.....	5,432	41	51.5	- 5.3	81	30	18	17 <sup>†</sup>	58	0.40	+ 0.14	0.30	T.	4	17	5	8	w.	E. J. Clark.
Eureka.....	Eureka.....	6,500	9	53.2		82	18	21	4	44	0.65		0.65	2.5	1	19	3	8	s.	Clay Simms.
Fallon.....	Churchill.....	3,965	7	58.2		90	19	29	25	49	0.43		0.43	0	1	22	3	5	w.	U. S. Experiment Station.
Fernley.....	Lyon.....	4,200	39	59.6	- 3.4	90	19	28	25	51	0.34	+ 0.16	0.26	0	3	17	6	7		Mrs. G. A. Steele.
Gardnerville.....	Douglas.....	4,830	12	54.8 <sup>a</sup>	- 6.5	95 <sup>a</sup>	16	30 <sup>a</sup>	5 <sup>†</sup>	61 <sup>a</sup>	0.61	+ 0.39	0.44	0	3				w.	Forest Service.
Gerlach.....	Washoe.....	0	0	61.6		85	13	30	3	39				0		20	0	10	ne.	Western Pacific Co.
Geyser.....	Lincoln.....	8	8	45.8		89	2	8	20 <sup>†</sup>	73	T.		T.	T.	0	17	12	1	s.	Mrs. J. F. Wambolt.
Glenbrook.....	Douglas.....	6,420	3	52.9		75	1 <sup>†</sup>	31	9	37	1.43		0.60	6.8	5	23	6	1	sw.	C. C. Henningsen.
Golconda.....	Humboldt.....	4,697	33	55.2	- 6.4	88	12	26	25	50	0.07	- 0.24	0.07	0	1	8	13	9	w.	Southern Pacific Co.
Halleck.....	Elko.....	5,631	19																	Do.
Hawthorne.....	Mineral.....	4,569	18	62.8 <sup>a</sup>	- 1.9	89 <sup>a</sup>	19	35 <sup>a</sup>	4	41 <sup>a</sup>	0.00	- 0.22	0.00	0	0					G. B. Stannard.
Jean.....	Clark.....	2,074	4	65.4 <sup>a</sup>		94 <sup>a</sup>	14	31 <sup>a</sup>	9	52 <sup>a</sup>	0.00		0.00	0	0					Salt Lake Route.
Lahontan.....	Churchill.....	4,200	0	62.2		87	18	38	4 <sup>†</sup>	41	0.17		0.14	0	3	24	3	3	w.	U. S. Reclamation Service.
Lida.....	Esmeralda.....	6,037	0	59.8		89	12	28	5	42	T.		T.	0	0	25	0	5	nw.	L. F. Detwiler.
Lewers Ranch.....	Washoe.....	5,500	24	56.7	- 3.6	84	19	31	4	43	2.20	+ 1.54	1.80	0	2	17	8	5		Ross Lewers.
Lovelocks.....	Humboldt.....	3,977	18								0.98	+ 0.74	0.47	0	3					A. P. Tilford.
McDermitt.....	do.....	4,700	23	54.7	- 7.2	82	18	29	24	42	0.97	+ 0.67	0.38	0	4	18	7	5		Scott Sterling.
McGill.....	White Pine.....	6,338	21	51.8	- 3.4	81	19	21	15 <sup>†</sup>	53	0.14	- 0.58	0.07	T.	4	22	3	5	n.	R. E. Middagh.
Millett.....	Nye.....	4	4	53.8		86	19	22	22	58	0.20		0.20	0	1	19	5	6	s.	Fred J. Jones.
Mina.....	Mineral.....	4,600	5	65.2		91	1	40	6 <sup>†</sup>	46	0.00		0.00	0	0	30	0	0		Southern Pacific Co.
Oasis Ranch.....	Esmeralda.....	5,106	0	57.4		84	1 <sup>†</sup>	31	25	45	T.		T.	0	0	23	4	3	s.	A. S. Patterson.
Potts.....	Nye.....	6,990	19	48.4	- 7.3	83	1	17	25	53	T.	- 0.28	T.	0	0	12	11	7	n.	Miss Mamie Potts.
Quinn River Ranch.....	Humboldt.....	4,850	10	53.5	- 3.3	90	21	19	16	70	0.29	- 0.10	0.14	0	3	19	1	10	w.	F. M. Payne.
Rebel Creek.....	do.....	0	0																	E. J. Hyatt.
Reno.....	Washoe.....	4,532	41	58.4	- 1.3	89	19	35	25	43	0.39	+ 0.12	0.38	0	2	19	6	5	w.	U. S. Weather Bureau.
Soda Lake.....	Churchill.....	4,534	5																	U. S. Reclamation Service.
Tecoma.....	Elko.....	4,812	34	50.8	- 9.6	88	22	10	20	75	0.33	- 0.04	0.23	0	2	18	8	4	n.	Southern Pacific Co.
Tonopah.....	Nye.....	6,090	7	60.3		82	19	35	4	28	0.01		0.01	0	1	21	8	1	se.	U. S. Weather Bureau.
Wells.....	Elko.....	5,631	40	50.5	- 7.6	80	8 <sup>†</sup>	20	25	58	0.00	- 0.12	0.00	0	0	22	0	8		Southern Pacific Co.
Winnemucca.....	Humboldt.....	4,432	33	55.0	- 5.5	85	18	28	25	54	0.34	± 0.00	0.22	0	4	18	5	7	ne.	U. S. Weather Bureau.

a, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 10, Great Basin.

Stations.	Watershed	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Wyoming.																																
Border	Bear				T.											.60					.40											1.32
Cokeville	do						T.		T.	.15	T.	.04		.05	.60	T.				T.				.06	.32							0.96
Ecanston	do				.14				.24	.40	.03				.30	T.								.05	T.							1.16
Idaho.																																
Geneva	Bear									.14	.08				.11																	0.33
Grace	do									.20	.30	.15	.10	.26	.40	.05							.15									1.61
Paris	do									.15	.59	.03	.04											.09								0.92
Weston	do	.02																														
Utah.																																
Alpine	G. S. Lake				.02					.72	.20																					0.94
Beaver	Sevier Lake								.46	.29																						0.75
Black Rock	do									.70																						0.70
Burrville	do									.35					.09																	0.44
Castle Rock	G. S. Lake				.10				.05	.50	.25		.05		.10									.15		T.						1.20
Cedar City	Desert								*	.93		.14																				0.93
Center	do				T.				T.	.59	.14																					0.73
Clarkston	G. S. Lake									.33			.05																			0.38
Corinne	do				T.																											T.
Deseret	Sevier Lake									1.00																						1.00
Elberta	do				.03	T.				.29	.05		.02																			0.39
Erekson	Desert			.05					.10	.51																						0.66
Enterprise	G. S. Lake																															0.00
Fairfield	do																															
Farmington	do			.35						.06	T.					T.																0.41
Fillmore	Sevier Lake					T.			.03	1.30	.11	T.			.03																	1.47
Frisco	Desert																															T.
Garrison	do							.11	.69		.06			.20																		0.86
Government Creek	do				.25				.40																							0.85
Granger	do																															0.61
Grantsville	G. S. Lake			0.6						.50	.05																					0.58
Grouse Creek	Desert			T.	.41				.03		T.	.14			T.																	1.57
Heber	G. S. Lake				T.	.12			T.	.10	.80	.35		T.	.20									T.	.10	T.						1.15
Henefer	do				.01				T.	.82	.18	.02			.02																	0.56
Hooper	do			.56																												
Ibapah (near)	Desert																															
Ibex	do																															
International	G. S. Lake																															T.
Iosepa	Desert				T.					T.	T.																					
Joy	do																															
Junction	Sevier Lake																															
Kanosh	do									1.00	.71	.04			.06																	1.81
Kelton	G. S. Lake				.18					.17		.11																				0.46
Lemay	Desert										.85	.09			T.																	0.00
Levan	Sevier Lake				T.																											0.94
Logan	G. S. Lake				T.			.06	.19	.12		.01		.13									.03									0.54
Low	do								.30	.20																						0.50
Lucin	Desert												.07																			0.07
Lund	do																															
Manti	Sevier Lake				T.				T.	1.04	.11				.09																	1.24
Maple Creek	G. S. Lake					.08			T.	.74	.06				.08																	0.96
Marion	do				T.	.16			.16	.84	.18	.03	T.		.18	.03									.08	T.	T.					1.66
Marysville	Sevier Lake																															
Meadowville	G. S. Lake								T.	1.35	.20	.15		T.	.70										T.	T.						2.40
Midlake	do														T.																	T.
Midvale	do			.45	.01				.49	.05	.01	.02											.03								.01	1.07
Millford	Sevier Lake																															

TABLE 2.—Daily precipitation for September, 1912. District No. 10—Continued.

Stations.	Watershed.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
<i>Oregon.</i>																																		
Ana River.....	S. E. drainage..	.02	T.	.04	T.	.02	.04	T.																							.10	0.12		
Bear Valley.....	do			.06	T.	T.	.15	.04																								0.35		
Burns.....	do							.16	.43															T.									0.50	
Burns Mill.....	do		.16	T.		.02	.17	.14	T.																								0.49	
Christmas Lake.....	do		.04	.03		.22	.24	.05																									0.58	
Cliff.....	do			.05			T.	.28																									0.33	
Diamond.....	do		.22			.19	.31	.05	.10																								T.	0.87
Embody.....	do			.12	T.	.09	.01	.05	T.																								T.	0.27
Fort Rock.....	do																																	0.65
Paisley.....	do		T.		T.	T.	.54	.11																T.									0.46	
Seneca.....	do				.31	.15																												0.46
Silver Lake.....	do																																	
Valley Falls.....	do																																	
<i>California.</i>																																		
Bijou.....	Truckee.....				.15		.08	.37																										0.60
Boca.....	do		.21	.17																														0.38
Bridgeport.....	East Walker.....							.03																										0.03
Deer Park.....	Truckee.....																																	
Glen Alpine.....	do		*	.34	.04		.07	1.33																										1.78
Hobard Mills.....	do							.10																										0.10
Lundy.....	East Walker.....																															.25		0.60
Markleville.....	East Carson.....	T.					.35																											0.35
Shields Ranch.....	East Walker.....							.35																										0.64
Silver Creek.....	East Carson.....	.03					.40																											2.00
Tahoe.....	Truckee.....	.35	T.																															

\* Precipitation included in that of the next measurement.  
 † Separate dates of falls not recorded.  
 ‡ Precipitation for the 24 hours ending on the morning when it is measured.  
 T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 10, Great Basin.

Date.	Wyoming.				Weston, Idaho.		Utah.																			
	Border.		Evanston.				Corinne.		Deseret.		Government Creek.		Meadow- ville.		Modena.		Ogden.		Parowan.		Provo.		Richfield.		Salt Lake City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	65	38	68	42	70	44	86	40	85	57	76	56	69	39	76	47	75	45	74	47	85	50	82	47	72	55
2.....	78	40	73	36	79	48	82	50	81	53	80	53	77	44	76	50	82	45	78	49	87	43	82	48	83	62
3.....	76	35	72	40	79	59	82	64	78	57	77	53	76	45	73	60	78	59	74	49	86	46	78	54	79	67
4.....	64	35	66	42	73	42	72	45	71	44	81	39	67	43	63	42	62	50	67	48	68	41	71	51	67	48
5.....	62	31	68	30	69	31	65	36	72	34	69	33	61	30	68	30	64	42	72	32	70	33	72	33	69	44
6.....	66	25	73	30	77	33	77	41	80	33	82	41	75	31	73	31	76	46	78	38	82	33	79	32	82	48
7.....	76	36	68	42	74	44	75	52	80	54	81	43	69	41	73	45	75	50	76	46	82	33	81	53	70	55
8.....	68	40	60	40	61	43	68	45	64	46	55	42	66	42	60	44	67	47	68	44	68	44	68	45	58	50
9.....	60	46	58	39	56	43	65	40	49	44	60	43	60	42	60	42	60	45	53	40	64	43	49	41	58	48
10.....	62	38	51	37	65	46	65	45	64	44	61	35	56	39	64	33	60	46	64	40	67	43	62	42	62	49
11.....	62	35	61	37	67	38	68	45	70	39	63	37	63	38	73	36	63	48	70	37	70	38	68	38	64	49
12.....	62	31	60	31	70	37	69	39	73	40	66	39	64	37	73	38	65	44	71	41	71	38	67	39	67	49
13.....	66	32	61	33	71	39	72	42	72	44	69	40	67	37	76	44	63	44	71	43	73	35	69	37	71	48
14.....	56	31	52	28	55	27	66	42	59	42	67	39	55	32	60	44	59	43	62	41	60	41	57	37	57	45
15.....	52	25	51	23	60	27	65	36	62	30	58	30	45	25	55	42	59	40	50	38	63	28	65	36	62	44
16.....	65	23	58	22	67	27	65	29	68	33	65	32	61	30	69	37	63	32	65	35	69	26	64	29	66	40
17.....	68	24	65	27	74	30	69	32	75	30	70	34	64	33	78	32	66	33	73	35	74	27	69	29	72	43
18.....	70	25	65	25	74	30	72	38	77	31	72	39	67	32	78	36	70	37	76	36	78	29	72	29	74	45
19.....	65	26	67	38	74	43	75	30	84	35	77	48	62	40	84	37	72	34	81	38	82	32	80	32	74	54
20.....	64	19	53	20	62	31	60	34	65	27	65	26	54	26	66	38	69	38	72	33	64	30	62	35	59	41
21.....	55	15	54	16	62	23	62	28	70	27	76	32	55	24	63	27	66	30	66	28	64	24	60	26	57	36
22.....	66	15	63	21	68	25	60	28	77	44	69	44	65	30	75	24	66	29	72	34	73	23	71	27	72	38
23.....	57	28	55	35	66	42	63	30	61	39	69	43	57	40	77	40	64	38	75	74	74	35	74	36	68	52
24.....	48	22	50	34	60	33	68	27	65	35	66	35	52	35	64	37	60	39	68	39	59	37	72	36	55	43
25.....	55	25	55	18	63	23	70	27	65	25	60	27	57	25	67	30	61	32	67	32	66	24	63	27	63	38
26.....	61	20	67	28	70	29	75	30	73	27	61	28	63	36	75	28	66	33	73	33	75	25	70	28	69	42
27.....	65	20	67	29	76	30	72	26	79	31	74	35	67	36	80	32	70	33	77	37	81	28	74	30	74	47
28.....	65	23	64	31	75	30	75	28	80	30	77	40	64	33	76	35	75	37	41	41	83	39	80	31	76	49
29.....	69	24	60	30	74	35	73	28	80	35	73	40	64	34	75	37	72	40	75	40	83	31	77	33	71	54
30.....	72	23	71	24	78	32	74	34	81	33	77	40	65	30	78	37	75	42	77	41	83	33	77	33	78	49
Mns.....	64.0	28.3	61.9	30.9	69.0	35.5	70.3	37.0	72.0	38.1	69.9	38.5	62.9	35.0	70.9	37.9	67.4	40.7	70.5	38.8 <sup>b</sup>	73.5	34.4	70.3 <sup>a</sup>	36.6 <sup>a</sup>	68.3	47.7

Date.	Nevada.																									
	Cherry Creek.		Elko.		Eureka.		Fallon.		Fernley.		Hawthorne.		Jean.		Millet.		Quinn Ri- ver Ranch.		Reno.		Tacoma.		Tonopah.		Winne- muca.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	76	46	75	49	78	40	83	46	83	53	.....	51	92	53	80	43	77	42	78	50	73	30	74	52	79	52
2.....	80	55	80	41	80	53	80	47	75	52	.....	55	90	52	80	50	74	44	64	52	77	35	72	49	75	46
3.....	75	44	75	40	74	49	52	42	61	41	.....	48	87	46	74	35	66	38	55	41	86	41	65	37	55	36
4.....	55	35	49	35	49	21	62	36	60	39	.....	35	83	39	56	30	64	30	59	39	75	33	53	35	58	34
5.....	65	26	67	25	60	30	74	34	65	33	.....	37	85	40	70	24	66	28	64	35	70	28	65	44	68	32
6.....	75	42	76	33	70	40	79	44	74	48	.....	88	42	75	45	69	39	64	39	80	20	71	50	77	41	40
7.....	71	46	72	43	65	35	68	45	67	37	.....	84	33	67	44	62	39	61	38	73	30	64	50	63	40	41
8.....	56	40	68	35	60	30	67	43	67	42	.....	83	34	64	36	59	32	64	40	76	32	59	43	63	35	32
9.....	55	36	66	28	59	28	69	35	71	34	.....	81	31	64	32	72	30	70	36	70	30	61	38	69	32	34
10.....	59	44	68	41	65	36	75	35	76	34	.....	82	36	69	31	75	27	73	36	68	35	65	46	72	34	32
11.....	61	43	69	44	73	37	78	38	80	39	.....	92	40	71	35	80	32	77	40	69	30	70	49	75	46	40
12.....	71	36	75	35	67	39	83	42	85	42	.....	93	42	75	35	85	31	82	44	70	21	75	54	81	40	41
13.....	73	39	77	32	65	35	84	40	86	42	.....	92	55	81	34	83	31	84	45	85	29	76	57	82	38	38
14.....	64	39	74	39	62	32	74	51	80	52	73	54	94	50	73	35	75	50	78	48	75	27	72	53	66	46
15.....	57	28	65	24	72	36	65	44	71	43	73	50	86	50	56	37	70	25	66	44	74	14	65	43	43	38
16.....	68	27	71	19	76	36	78	34	78	35	77	47	84	53	75	35	80	19	79	38	78	15	72	51	76	20
17.....	73	35	76	18	79	38	82	36	83	36	79	44	.....	77	29	84	26	81	41	82	16	76	56	80	28	28
18.....	75	36	80	25	82	40	86	44	87	43	85	49	.....	83	35	85	30	85	46	80	22	79	57	85	32	39
19.....	81	46	77	32	79	39	90	42	90	48	89	51	.....	86	31	81	38	89	46	77	19	82	62	81	39	39
20.....	70	35	69	27	70	29	74	40	85	38	79	54	.....	73	38	75	26	79	46	85	10	73	51	71	34	34
21.....	62	31	68	22	67	26	76	32	78	37	77	45	.....	74	26	90	20	79	39	87	12	70	50	73	29	29
22.....	72	28	76	18	76	32	83	34	85	34	83	4														

<sup>a</sup>, <sup>b</sup>, <sup>c</sup>, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record  
 §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.</

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

## GENERAL SUMMARY.

September, 1912, was cool; but not so cool as September, 1911, which was the coolest September in a period of 17 years. The present September was, relatively speaking, a wet month—that is, more rain fell than in any September since 1897, with the single exception of September, 1904, which was the rainiest September on record. It must not, however, be understood that the month was rainy in the usual sense, for practically all the rain fell during the first week. Last year the first rain of the season did not occur until the 28th. This year the rain began as early as the 2d.

There were no special features of importance in the general character of the weather. The first week was unsettled; but for the rest of the month there was a succession of bright days with moderate temperature, and there was less than the usual amount of fog along the coast. There were no unusual temperatures in the Great Valley or in the southeastern counties. In the Salton Desert section the highest temperature recorded was 108°, which is several degrees lower than the maximum usually recorded on September afternoons in this section.

The month began with pressure distribution favorable for southwest winds and rain in the northern counties. Showery weather prevailed for six days in the central and northern counties; but the rain area did not extend as far south as was anticipated. The rain was unusually heavy in the Sacramento Valley and the San Francisco Bay section. In the northern part of the Sacramento Valley more than 3 inches were recorded in 24 hours on the 6th. In the Sierra snow fell and a depth of 2 inches was reported on the ground at Summit. There was a decided change in pressure distribution on September 7, and conditions were such as to favor north winds and dry weather for a period of 20 days. The map of September 17, p. m., is interesting as a typical warm-weather map. September 18 was the warmest day of the year at many points in central and northern California. At San Francisco a maximum temperature of 94.5° occurred, which is the highest for the year; the next warmest day being June 2, when a temperature of 93° was recorded.

From an agricultural standpoint conditions were favorable. Ample warning of impending rain was given to the raisin growers and fruit dryers. It was necessary to stack the trays several times; but in general the loss was small. The rain did not extend far enough south to damage the bean crop in the southern coast counties.

## TEMPERATURE.

The mean temperature of the State was 2° below the normal, this being with two exceptions the greatest negative departure in 10 years.

The following table gives the temperature means and departures for each September from 1897 to 1912, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
	°F.	°F.		°F.	°F.
1897.....	67.7	-0.8	1905.....	68.6	+0.1
1898.....	69.2	+0.7	1906.....	68.6	+0.1
1899.....	70.9	+2.4	1907.....	65.6	-2.9
1900.....	65.4	-3.1	1908.....	68.1	-0.4
1901.....	66.0	-2.5	1909.....	68.2	-0.3
1902.....	70.7	+2.2	1910.....	67.3	-1.2
1903.....	68.7	+0.2	1911.....	63.9	-4.6
1904.....	70.3	+1.8	1912.....	66.5	-2.0

The highest temperature recorded at any station was 111° at Mammoth Tank, on the 19th. This was 1° lower than the highest temperature recorded during September, 1911. The lowest temperature during the month was 20°, which occurred at Tamarack on the 12th and at Quincy on the 25th. This was 3° higher than the lowest recorded during September, 1911. The highest monthly mean was 86.7° at Bagdad, which was 1.2° below the highest monthly mean of the preceding September, which also occurred at Bagdad. The lowest monthly mean was 44.2° at Tamarack, which was 1.4° below the monthly mean for September, 1911, at the same place.

## PRECIPITATION.

The month was for September quite wet. It was next to the rainiest September on record, but nearly all the rain fell during the first week. The rainfall was not well distributed geographically and the southern counties obtained very little, if any.

The following table gives the average precipitation and departure from the normal for each September from 1897 to 1912, inclusive:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
	°F.	°F.		°F.	°F.
1897.....	0.03	-0.46	1905.....	0.16	-0.33
1898.....	.64	+ .15	1906.....	.25	- .24
1899.....	.03	- .46	1907.....	.13	- .36
1900.....	.22	- .27	1908.....	.40	.00
1901.....	.94	+ .45	1909.....	.52	+ .03
1902.....	.01	- .48	1910.....	.60	+ .20
1903.....	.10	- .39	1911.....	.19	- .30
1904.....	2.66	+2.17	1912.....	1.65	+1.16

The greatest monthly rainfall was 9.15 inches at Stirling City, which was 5.49 inches in excess of the greatest monthly rainfall of September, 1911. There was no rainfall at 69 stations. The heaviest 24-hour rainfall was 5.37 inches at Durham.

## SNOWFALL.

Snow fell in the Sierra September 5-6, but did not long remain on the ground. A depth of 2 inches was reported at Summit on the 6th, which melted within 24

hours. Near Mount Whitney, on its eastern slope, 2 inches fell, September 5 and 6, above 12,000 feet. On the 28th also 2 inches fell.

#### SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Percent- age of possible.	Stations.	Hours.	Percent- age of possible.
Eureka.....	112	30	Sacramento.....	330	59
Fresno.....	348	93	San Diego.....	278	75
Los Angeles.....	287	71	San Francisco.....	243	65
Mount Tamalpais.....	271	73	San Jose.....	293	79
Red Bluff.....	313	84	San Luis Obispo.....	276	74

#### NOTES ON THE RIVERS OF THE SACRAMENTO AND LOWER SAN JOAQUIN WATERSHEDS DURING SEPTEMBER, 1912.

By N. R. TAYLOR, Local Forecaster.

*Sacramento watershed.*—All streams in this watershed averaged slightly above the stages that obtained during the preceding month. They were, however, abnormally low, especially the Sacramento River between Walnut Grove and the mouth of the Feather, which was lower than for any previous September of which there is a record.

General rains throughout the drainage basin of the Sacramento Valley during the first decade of the month resulted in rapid rises in the main rivers and freshets in some of the smaller watercourses. The greatest 24-hour rise in the Sacramento was at Colusa, where it rose 6.7 feet and culminated in a stage of 11.2 feet on the 8th. The crest of this rise reached Sacramento city on the 9th. After this date the river fell steadily.

In the watershed of the Feather-Yuba River there was a substantial rise during the three days ending on the 9th, but after this date both streams fell rapidly, and by the end of the month they had reached the extreme low-water stages that prevailed prior to the rains.

In the American River watershed the rainfall was lighter than in any other section of the valley, and as a result there was little change in the run-off of this stream.

There was a marked improvement in the navigability of the Sacramento River as a result of the rise, which swept away many of the sand bars that had formed at various points in this stream.

*San Joaquin watershed.*—The rivers of this watershed averaged about 0.5 of a foot above their height during the preceding month, due to the rains that were more or less general in the first decade of the month. The rises, however, were slight, the greatest being 1 foot in the Tuolumne River at Jacksonville during the 24 hours ending at 7 a. m. of the 8th.

#### NOTES ON STREAMS AND WEATHER OF THE UPPER SAN JOAQUIN WATERSHED.

By W. E. BONNETT, Local Forecaster.

Although low, the mean stages of the streams of this district for September were higher than the stages for that month in several other years of the last six and in some cases higher even than the September average for that period.

At Merced Falls the mean stage was 0.3 foot, equalling the 1911 stage and exceeding the September stages in the years 1907 to 1910, inclusive. Daily gage heights were very uniform throughout the month, with a range of but 0.2 foot. In the San Joaquin the average monthly stage

at Firebaugh was -0.5 foot, or slightly lower than the 6-year mean, and higher than the stages in 1908, 1909, and 1910.

On the whole, weather conditions were favorable. A fall of 0.10 inch of rain occurred on the 3d, making the third date in 26 years on which there has been measurable rainfall between August 1 and September 3. The temperature was about one degree below normal. The first decade was so cool that the high temperature during the remainder of the month did not overcome the negative departure.

#### EXCESSIVE RAINS IN CALIFORNIA.

By A. G. McADIE.

In an article in the Monthly Weather Review, July, 1912, page 1062, Mr. Edward D. Coberly gives an extensive tabulation of all monthly rainfalls of 10 inches or more and of all amounts of 4 inches or more in 24 hours that have occurred in the State of Louisiana. It has occurred to the writer that a somewhat similar table for California would be of value not only for engineers and others interested in power questions, but also for students of climatology who may be interested in studies of heavy rainfall in various parts of the United States.

It is evident from the figures that follow that certain portions of California may well be considered as lying within the zone of maximum intensity of rainfall in the United States. It may also be noted that the records are of comparatively recent date and have been made with standard 8-inch gages properly exposed.

The following table shows the heaviest recorded rainfall in California during the past 10 years: The greatest annual amount is 153.54 inches (3,900 mm.) at Monumental, Del Norte County, exact elevation not determined. This occurred in 1909. This is not given in the list compiled by Mr. Coberly, although in excess of any of the rainfalls quoted for places in the United States, except Glenora, Oreg., record of 1896, when 167.29 inches (4,250 mm.) fell, and the same place in 1897, 156.50 inches (3,969 mm.) fell.

Rainfalls exceeding 100 inches (2,540 mm.) have occurred at many points in California. From an inspection of long period records made at several stations in California, we are justified in concluding that the year 1909 in California was the year of heaviest rainfall. The years 1871, 1879, 1880, 1882, 1884, 1893, 1896, 1899, 1904, 1907, and 1911 were all years of heavy rainfall; but it is doubtful if the total amount at any one station was in excess of that which fell during 1909.

#### Excessive annual rainfalls in California.

Stations.	Elevation.	1911.	1910.	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.
	Feet.										
Monumental.....				153.54	88.59	139.20	116.13	69.30			
Magalia.....	2,321	77.62	49.32	150.62	44.96	96.32	125.01	48.16	94.40		
La Porte.....	5,000		60.22	141.40	58.08	113.94	124.46			77.04	89.09
Helen Mine.....	2,750	73.81	50.76	136.86	53.90	103.13	129.69	68.03	114.72	67.37	137.58
Inskip.....	4,975	78.49	58.08	134.18	56.42						
Branscomb.....	2,000	65.17	56.49	130.14	59.06	108.42	99.08	55.03	115.07	91.06	120.35
Woodleaf.....	3,250			125.28		103.18	125.41				
Fordyce Dam.....	6,500	71.03	47.41	125.28	41.88	86.14	120.64	43.16	75.69	63.31	65.59
Bear Valley (Nevada Co.).....	4,600	72.75	49.44	119.39	45.47	94.47	110.85	46.93	103.59	67.44	
Pilot Creek.....	4,000	79.94	44.01	113.98	41.96	87.15	110.61	42.56	93.99	68.66	60.70
Blue Canon.....	4,695	67.27	42.13	110.72	40.97	100.17	104.21	46.65	93.48	64.18	64.99
Stirling City.....	3,525	66.20	35.75	108.63	33.56	111.20	125.08	44.02			
Brush Creek.....	2,140	66.53	37.62	104.65	48.57	86.64	106.25	50.63	91.98		
Nimshew.....	2,500	65.70	40.36	103.26	44.82	82.21	104.00	43.11			
Crescent City.....	50				53.35	91.46	70.27	50.91	107.61	80.76	103.12
Upper Mattole.....	244	64.13	62.81	121.79	61.93	99.84	85.70	70.04	126.53	94.88	123.26
Bowmans Dam.....	5,500			113.85	47.27	86.55	97.45	64.49	135.70	88.70	70.92

## Other heavy annual rainfalls were:

	Inches.
During 1909:	
Camptonville.....	136.38
Deer Creek.....	123.31
Delta.....	114.85
Downieville.....	101.64
Head Dam.....	100.14
Kennett.....	115.92
West Branch.....	119.45
During 1884, Bowmans Dam.....	119.64
During 1889:	
Delta.....	111.05
Upper Mattole.....	101.25
During 1890, Bowmans Dam.....	102.88
During 1896:	
Bowmans Dam.....	109.94
Bear Valley.....	102.34
Delta.....	100.27
La Porte.....	120.20
Upper Mattole.....	102.52
During 1899, La Porte.....	101.04

## HEAVIEST MONTHLY RAINFALLS IN CALIFORNIA.

Apparently the heaviest monthly rainfall in the United States occurred in California, at Helen Mine, January, 1909, when 71.54 inches (1,817 mm.) fell. The following table shows excessive monthly amounts at a number of stations in California during January, 1909:

Stations.	Inches.	Stations.	Inches.
Bear Valley (Nevada County).....	49.02	Helen Mine.....	71.54
Ben Lomond.....	42.57	Kennett.....	54.08
Blue Canon.....	48.35	La Porte.....	63.52
Boulder Creek.....	39.42	Laytonville.....	46.50
Bowmans Dam.....	47.53	Magalia.....	64.77
Branscomb.....	55.79	Monumental.....	43.84
Brush Creek.....	46.39	Mount St. Helena.....	40.33
Camptonville.....	55.43	Pilot Creek.....	50.25
Deer Creek.....	56.32	Stirling City.....	51.63
Delta.....	53.28	Upper Mattole.....	47.84
Downieville.....	42.81	Woodleaf.....	63.08
Fordyce Dam.....	55.53	West Branch.....	63.71
Head Dam.....	41.03		

The heaviest monthly rainfalls at regular Weather Bureau stations during entire period of record are:

	Inches.
San Francisco, January, 1862.....	24.36
Sacramento, January, 1862.....	15.04
Eureka, February, 1902.....	19.49
Red Bluff, November, 1885.....	17.05
Los Angeles, December, 1889.....	15.80
San Diego, February, 1884.....	9.05
Independence, December, 1867.....	12.19
San Luis Obispo, January, 1909.....	17.00
Mount Tamalpais, January, 1909.....	15.63
Point Reyes, January, 1909.....	9.78
San Jose, December, 1890.....	10.55
Fresno, December, 1909.....	4.50
Southeast Farallon, January, 1909.....	8.18

## HEAVIEST 24-HOUR RAINFALLS.

While the record for maximum monthly rainfalls apparently lies with California, the record for the greatest 24-hour rainfall in the United States is probably that mentioned by Mr. Coberly, 21.4 inches, at Alexandria, La., June 15-16, 1886. In this connection, it is interesting to refer to the rainfall record made at Baguio, P. I., July 14 to 15, 1911, published as plate 5, of the Manila Weather Bureau Bulletin for July, 1911. The record made on a Friez quadruple register shows that the total rainfall from noon July 14 to noon 15 was 45.99 inches (1,168 mm.). The greatest hourly amounts were 3.60 inches (91 mm.) and 3.54 inches (90 mm.); the greatest rainfall in 10 minutes was 0.72 of an inch (18 mm.), and for five minutes, 0.40 of an inch (10 mm.). The total precipitation at Baguio for the four days, July 14 to 17,

inclusive, was 88.85 inches (2,239 mm.). This is probably the finest and most reliable rainfall record that has yet been made during periods of excessive rain. In passing, it is interesting to note that the rainfall continued to be excessive for several days.

In California, the heaviest rainfall for a short period occurred at Campo, August 12, 1891. The 24-hour rainfall was 11.50 inches (292 mm.), so far as can be ascertained, and this fell practically within 80 minutes. The total amount for the storm, or cloudburst as it was known, was 16.10 inches (409 mm.). On March 12, 1906, at Mono Ranch, Ventura County, during a period of heavy rain, it was reported that 11.50 inches (292 mm.) fell in 24 hours. At Monumental 9.60 inches fell in 24 hours November 22, 1909; on the previous day 6.05 inches fell, and on the day following 2.80 inches.

## Twenty-four hour rainfalls, 5 inches or more.

	Inches.
February, 1902:	
Ben Lomond.....	5.54
Branscomb.....	6.60
Calistoga.....	6.57
Delta.....	5.50
Healdsburg.....	5.65
Laurel.....	5.05
Mount St. Helena.....	7.00
Zenia.....	5.60
November, 1902:	
Branscomb.....	6.80
Mercury.....	5.06
January, 1903:	
Bowmans Dam.....	8.39
Crescent City.....	7.09
Shasta.....	5.04
Summerdale.....	6.44
Upper Mattole.....	5.30
March, 1903, Laurel.....	5.86
November, 1903:	
Branscomb.....	5.80
Colfax.....	5.02
Shasta.....	6.46
Upper Mattole.....	5.82
Ben Lomond.....	6.70
Boulder Creek.....	5.18
Brush Creek.....	5.72
Felton.....	5.59
Kentfield.....	6.27
Laurel.....	5.05
Nimshew.....	6.08
Pilot Creek.....	6.25
Pino Grande.....	8.00
Stirling City.....	6.00
February, 1904:	
Branscomb.....	7.85
La Porte.....	5.63
Mercury.....	6.88
Nevada City.....	5.56
Quincy.....	5.32
San Rafael.....	6.32
Shasta.....	6.58
Willits.....	5.77
Zenia.....	5.02
Bear Valley, Nevada County.....	6.00
Bowmans Dam.....	7.97
Kentfield.....	8.66
Laurel.....	5.90
Mount St. Helena.....	6.00
Pilot Creek.....	5.61
Upper Mattole.....	6.63
March, 1904:	
Brush Creek.....	5.13
Delta.....	5.01
Fort Ross.....	6.49
Healdsburg.....	5.25
Magalia.....	6.72
Mercury.....	5.47
Nimshew.....	5.50
Ben Lomond.....	7.02
Bowmans Dam.....	5.18
Mount St. Helena.....	6.00
Upper Mattole.....	5.21

December, 1904:	Inches.	February, 1907—Continued.	Inches.
Helen Mine.....	7.80	Fort Ross.....	5.99
Meadow Valley.....	6.46	Georgetown.....	5.33
Mount St. Helena.....	5.75	Stirling City.....	5.20
January, 1905:		Laytonville.....	5.67
Helen Mine.....	8.72	March, 1907:	
Mount St. Helena.....	6.20	Blocksburg.....	6.02
Upper Mattole.....	6.21	Blue Canon.....	6.45
February, 1905, Lowe Observatory.....	5.33	Branscomb.....	6.32
March, 1905:		Brush Creek.....	5.70
Nordhoff.....	5.75	Calistoga.....	5.60
Glenn Ranch.....	5.58	Greenville.....	6.17
Lowe Observatory.....	6.00	Healdsburg.....	5.34
Nellie.....	5.90	Helen Mine.....	7.40
Ozena.....	6.78	La Porte.....	7.29
January, 1906:		Magalia.....	7.65
Helen Mine.....	9.65	Mono Ranch.....	6.46
Magalia.....	10.86	Nimshew.....	5.54
Stirling City.....	8.50	Quincy.....	6.50
Blocksburg.....	6.19	Stirling City.....	7.90
Branscomb.....	9.76	Bear Valley.....	5.74
Brush Creek.....	6.70	Ben Lomond.....	6.02
Delta.....	6.00	Boca.....	6.00
Fort Ross.....	5.49	Boulder Creek.....	5.39
Georgetown.....	5.00	Bowmans Dam.....	6.49
Greenville.....	5.40	Camptonville.....	5.58
La Porte.....	6.13	Deer Creek.....	5.10
Monumental.....	6.53	Fordyce Dam.....	5.94
Nimshew.....	5.70	Glenn Ranch.....	7.06
Summerdale.....	7.10	Inskip.....	8.00
Ukiah.....	5.20	Laurel.....	5.00
Willits.....	7.70	Laytonville.....	7.36
Zenia.....	7.30	Lytle Creek.....	6.90
Bear Valley.....	5.08	Mercury.....	5.40
Ben Lomond.....	5.18	Mount St. Helena.....	5.65
Boulder Creek.....	5.93	Upper Mattole.....	7.42
Bowmans Dam.....	8.10	West Branch.....	7.47
Fordyce Dam.....	6.50	Woodleaf.....	5.50
Fouts Springs.....	5.01	December, 1907:	
Laurel.....	6.35	Branscomb.....	5.25
Laytonville.....	8.18	Monumental.....	6.70
Mercury.....	6.80	February, 1908, Ben Lomond.....	5.40
Mount St. Helena.....	5.25	March, 1908, Cisco.....	7.20
Nellie.....	6.24	October, 1908, Branscomb.....	5.98
Pilot Creek.....	7.39	January, 1909:	
Skyland.....	6.60	Ben Lomond.....	5.45
Upper Mattole.....	6.73	Blue Canon.....	7.20
Woodleaf.....	6.85	Branscomb.....	8.60
March, 1906:		Brush Creek.....	5.20
Cuyamaca.....	7.48	Camptonville.....	7.42
Mono Ranch.....	11.50	Cuyamaca.....	5.13
Stirling City.....	5.20	Deer Creek.....	8.13
Summerdale.....	6.08	Downieville.....	5.34
Crockers.....	6.10	Fordyce Dam.....	7.53
Glenn Ranch.....	6.57	Head Dam.....	6.53
Nellie.....	8.85	Helen Mine.....	9.10
December, 1906:		Inskip.....	6.58
Brush Creek.....	5.33	Kennett.....	8.90
Georgetown.....	5.88	La Porte.....	9.16
Jamestown.....	5.50	Laytonville.....	6.14
Nevada City.....	5.51	Lick Observatory.....	6.37
Placerville.....	5.28	Magalia.....	9.43
Sonora.....	5.42	Mount St. Helena.....	6.65
Stirling City.....	6.00	Pilot Creek.....	9.16
Summit.....	5.00	Rialto.....	8.16
Watsonville.....	5.20	Santa Barbara.....	6.40
Bear Valley.....	5.07	Sierra Madre.....	6.73
Ben Lomond.....	7.08	Summerdale.....	6.20
Boulder Creek.....	6.20	Stirling City.....	6.50
Crockers.....	5.12	Upper Mattole.....	5.35
Glenn Ranch.....	5.30	Upland.....	5.97
Glenwood.....	5.84	Woodleaf.....	8.00
Grass Valley.....	5.55	Georgetown.....	6.05
Kennedy Mine.....	6.04	Grass Valley.....	6.35
Laurel.....	5.65	Angels Camp.....	6.97
Lowe Observatory.....	5.70	Bear River.....	5.36
Lytle Creek.....	5.68	Glenn Ranch.....	6.50
Mount St. Helena.....	5.00	Julian.....	6.10
January, 1907:		Lowe Observatory.....	7.84
Mono Ranch.....	5.92	Lionsville.....	6.67
Upper Mattole.....	8.66	Lytle Creek.....	9.68
February, 1907:		Mesa Grande.....	6.50
Blue Canon.....	5.55	West Branch.....	7.43
Branscomb.....	5.50	Nellie.....	6.89
Emigrant Gap.....	6.00		

	Inches.
February, 1909:	
Cloverdale.....	5.38
Delta.....	6.89
Magalia.....	7.88
Mono Ranch.....	7.00
Santa Margarita.....	5.30
Sisson.....	7.83
Lytle Creek.....	5.16
March, 1909, Lytle Creek.....	5.52
November, 1909:	
Blue Canon.....	5.00
Cisco.....	5.05
Monumental.....	9.60
December, 1909:	
Rialto.....	6.70
Santa Margarita.....	7.70
Summerdale.....	7.62
January, 1910, Lytle Creek.....	5.50
January, 1911:	
Branscomb.....	6.85
Brush Creek.....	6.02
Camptonville.....	6.27
Los Gatos.....	6.15
Magalia.....	6.80
Nevada City.....	6.10
Nimshew.....	5.28
Santa Barbara.....	5.09
Squirrel Inn.....	5.85
Summerdale.....	6.43
Ben Lomond.....	7.15
Glenn Ranch.....	6.28
Glenn Ranch.....	6.14
Laurel.....	7.50
Laytonville.....	6.83
Lick Observatory.....	9.19
Lick Observatory.....	5.56
West Branch.....	5.19
March, 1911:	
Mono Ranch.....	7.90
San Luis Obispo.....	5.98
Sierra Madre.....	5.14
Stirling City.....	5.85

Mr. John Pettee states that on December 20-21, 1866, he measured the rainfall in San Francisco, as follows:

Time.	Date.	Inches.	Inches per hour.
11.30 a. m. to 4.45 p. m.....	Dec. 20	1.97	0.37
4.45 p. m. to 7.45 p. m.....	do.....	2.27	.76
7.45 p. m. to 9.50 p. m.....	do.....	.85	.41
9.50 p. m. to 1.00 a. m.....	Dec. 21	1.20	.39
1.00 a. m. to 8.15 a. m.....	do.....	1.47	.20
Total.....		7.76	.37

The reason for many measurements was that the gage held only about 2.50 inches.

#### MINIMUM TEMPERATURE ON MOUNT WHITNEY, CAL.

By A. G. McADIE.

Maximum and minimum thermometers were placed in a small shelter on the north wall of the observatory on Mount Whitney, elevation 14,502 feet, in September, 1909. On May 24, 1910, Mr. G. F. Marsh, cooperative observer, succeeded in reaching the summit and found the instruments in the condition in which they were left. The minimum temperature was  $-23^{\circ}$  F. and the maximum temperature  $55^{\circ}$  F.

In a Monthly Weather Review for May, 1910, the writer called attention to this reading as fairly representing the lowest temperature of that winter at the highest point in the United States proper. Lower temperatures were recorded in California during this same period. For example,  $-30^{\circ}$  F. at Alturas on January 3, 1909, elevation 4,460 feet, and  $-29^{\circ}$  F. at Tamarack, elevation 8,000 feet, January 5, 1909.

On September 26, 1912, the instruments were reset. Mr. F. H. Criss, who read the instruments, states that

minimum thermometer No. 1270 indicated a temperature of  $-35^{\circ}$  F. The maximum temperature was  $65^{\circ}$  F.

It may be stated that in the Sierra, just north of Lake Tahoe, temperatures as low as  $-30^{\circ}$  F. ( $-34^{\circ}$  C.) have occurred. During the winter of 1898 a minimum thermometer exposed on one of the high Sierra peaks recorded  $-17^{\circ}$  F. During the same period the temperature at Bodie fell to  $-30^{\circ}$  F.

The following low temperatures were reported during 1911:

	Elevation.	Temperature.	Date.
	Feet.	$^{\circ}$ F.	
Sierraville.....	5,000	$-30$	Feb. 16
Tamarack.....	8,000	$-26$	Dec. 30
Madeline.....	5,270	$-24$	Jan. 22
Truckee.....	5,819	$-22$	Feb. 26
Alturas.....	4,460	$-21$	Dec. 23

During 1912, Alturas,  $-26^{\circ}$  F., January 3; Sierraville,  $-23^{\circ}$  F., January 3.

#### BEAR VALLEY HYDROELECTRIC DEVELOPMENT, CALIFORNIA.

By JAMES H. WISE.<sup>1</sup>

The hydroelectric project on the south fork of the Yuba and Bear Rivers has been in contemplation for some time, but active work was not begun until permission was received from the railroad commission on July 3, 1912, by the Pacific Gas & Electric Co.

The development makes use for power purposes of the water already impounded in 20 reservoirs in the catchment area of the South Yuba, having a capacity of 2,024,000,000 cubic feet, combined with additional storage of 4,000,000,000 cubic feet, to be secured at Lake Spaulding. The water thus stored is to be diverted, together with the natural run-off, to the Bear River watershed, conducting it in tunnels and canals along the south side of the Bear River Canyon to a point about 3 miles northeast of Towle Station, on the Southern Pacific, to a regulating reservoir known as the "Drum Forebay." Two riveted steel pipe lines will lead from this reservoir to the power house, 1,350 feet lower in elevation, and situated on Bear River, where an installation of 40,000 kilowatts, consisting of 4 units, will be erected, together with the necessary transformers, exciters, governors, and other adequate equipment to make the entire installation complete. Electric power from this plant will be transmitted at 115,000 volts on a double circuit, steel-tower line, extending in a southwesterly direction via Nicolaus to Cordelia, the load center of the Pacific Gas & Electric Co. At this point step-down transformers will be used for reducing the pressure to approximately 60,000 volts, permitting the power thus to be transmitted to various parts of the system: Oakland, Berkeley, Alameda, San Rafael, Santa Rosa, Vallejo, Petaluma, and northward toward Suisun, Cement, Woodland, Sacramento, Davis, Dixon, and, in fact, to any part of the vast territory already covered by the 60,000-volt network of transmission lines.

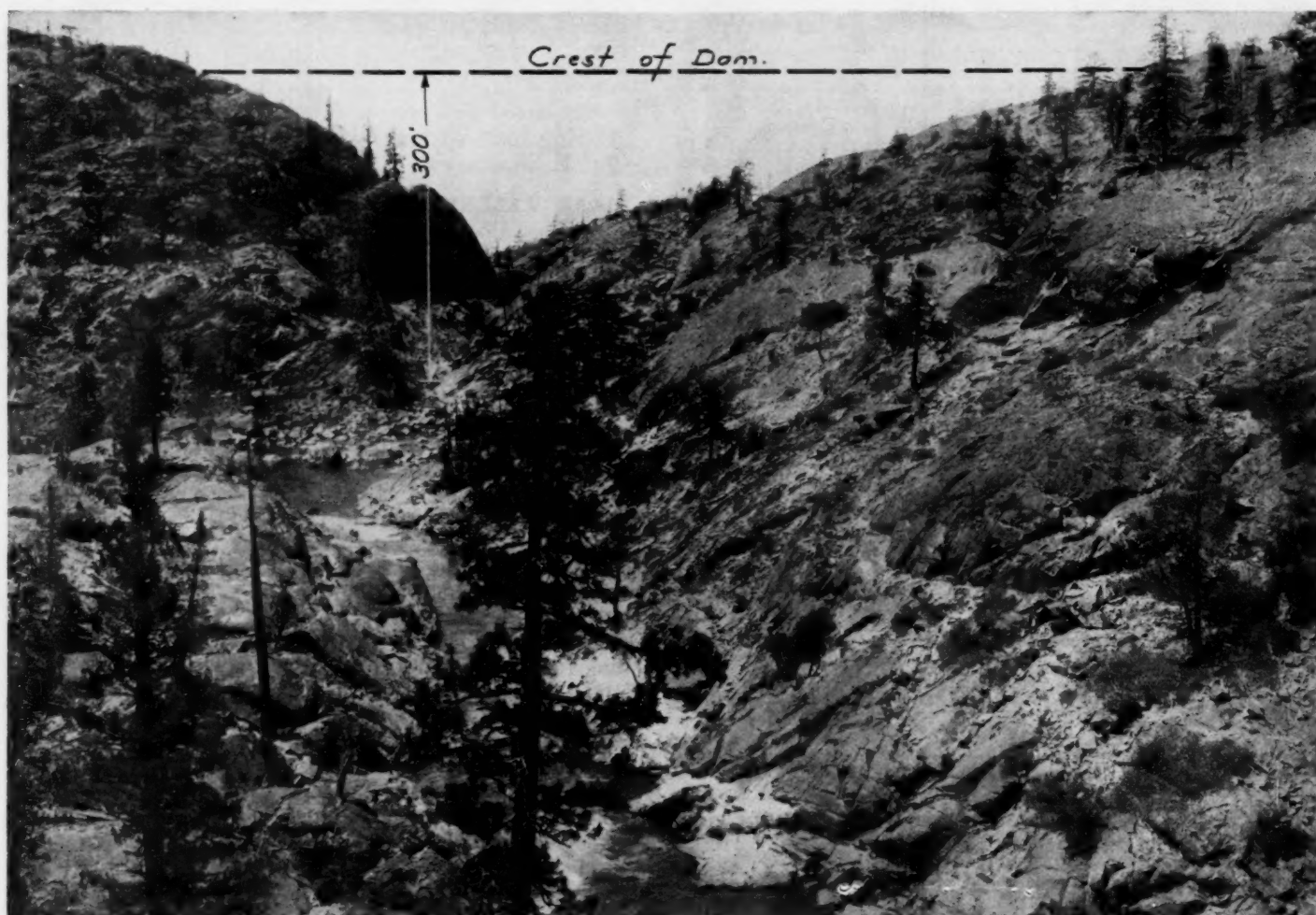
The project further includes the construction of a steel-tower line from Cordelia to San Rafael, Sausalito, and Lime Point, thus providing Pacific service to the Marin Peninsula and the transmission of hydroelectric power ultimately to San Francisco.

Adverting to Lake Spaulding, this splendid reservoir site, with a capacity of 4,000,000,000 cubic feet, or nearly double the combined capacity of all of the reservoirs in

<sup>1</sup> Assistant general manager Pacific Gas & Electric Co.

the South Yuba system, will be formed by the construction of a huge monolith of cyclopean concrete. The dam will be of gravity type section, arched upstream for an additional factor of safety and a more substantial type of construction, thus insuring stability and absolute security against any possible failure. The dam will be 300 feet in height and will be built somewhat similar to the New Croton and Croton Falls Dams of the New York water supply, and of cross section, approximating the Roosevelt Dam, which impounds such a vast quantity of water for the Salt River project, a part of the reclamation work of the United States Government. The reservoir is situated about 2 miles northeast of Smart Station,

thousand board feet of lumber per day. There is already a good stock of lumber on hand for the work as it progresses. The clearing of the reservoir site will therefore be practically completed and, at the same time, a most valuable use of the timber will be made. Any surplus will be used in the maintenance and repairs of the many flumes on the South Yuba system. A solid rock, concrete-lined tunnel, 4,427 feet long, will form the reservoir outlet and will conduct the water to the upper end of a concrete-lined canal  $8\frac{1}{2}$  miles in length, having a capacity of 400 second-feet, or 16,000 miner's inches. This canal will contain no flumes, but will have a short siphon near the lower end leading to the forebay previously men-



View of the Spaulding Dam site from upstream, showing the elevation to be reached by the waters of the lake.

on the Southern Pacific Railroad, at an elevation of 4,600 feet. The proximity of the site to the main line of the Southern Pacific is indeed fortunate and a spur track directly to the location of the dam will greatly facilitate and economize the work. This track has already been constructed and work on the cableways, sand and gravel bunkers, and tunnel outlet is now rapidly progressing.

In connection with this work at Lake Spaulding not the least important is the operation of the old Birce & Smart sawmill, now owned by the Pacific Gas & Electric Co. The high dam will flood 700 acres of land, which now contains over 1,000,000 board feet of standing timber which the mill has been converting into ties, boards, and dimension stuff at the rate of from twenty to thirty

tioned. The regulating reservoir site is a large flat area capable of being converted into a forebay of 400 acre-feet capacity without excessive cost, and will thus provide sufficient water to run the entire plant for 24 hours, and will amply provide for peak load and other power fluctuations—a most valuable adjunct to a plant of this size and importance.

The forebay will be constructed by excavating the earth and loose material from the basin, forming a dam about 35 feet in height on the south or lower side of the slope. The earth embankment will be made according to the most approved methods, namely, by placing the material in thin layers, thoroughly dampening, rolling, and compacting, thus making the dam absolutely imper-

vious. Two riveted steel pipe lines leading from this regulating reservoir will be 6,300 feet long and 72 inches in diameter at the upper end. The lower end will be provided with Y branches, castings, and suitable gates and nozzles for conducting the water to the eight water wheels, each with a capacity of 9,000 horsepower. The pressure at the nozzle of the 7-inch stream impinging upon the water-wheel buckets will be 585 pounds per square inch, or nearly three times the high-steam pressure used by the big locomotives of the Southern Pacific Co.

That this work, both in the field and office, is most actively carried on is shown by the fact that the plans and specifications of the water wheels, generators, transformers, steel towers, and pipe lines are already in the hands of the manufacturers. Excavation for the powerhouse foundations began immediately upon securing the necessary permission from the railroad commission, and

Preliminary and final surveys and many of the rights of way have been already secured for the 118-mile transmission line from the Drum power house to Cordelia, and work on the foundations for this line will begin within a few weeks, so that the towers can be installed, assembled, and erected in the early spring of 1913, thus insuring and guaranteeing completion of the line before the fall of next year, which will witness without doubt the final completion of the entire project.

#### THE SPAULDING DAM OF THE BEAR VALLEY HYDRO-ELECTRIC DEVELOPMENT, CALIFORNIA.

BY HERMANN SCHUSSLER.

The dam will be located a short distance downstream from Lake Spaulding, and, owing to its contemplated height of 300 feet above the bed of the river, the original reservoir will be entirely submerged. While the length of the proposed dam will be only 60 feet at the bottom



Looking toward the Spaulding Dam site from upstream.

camp were established along the canal line from the Lake Spaulding Dam to the forebay. At the powerhouse sites at this time 1,400 men are busily engaged in clearing, excavating, and carrying on the many phases of work necessary to a project of this kind, while the engineers of the company have been for months preparing all necessary details, plans, and specifications for each and every individual part of the equipment for the necessary prosecution and construction of the work, as well as the large units which will be used in the final operation of the completed plant. The canal line for its entire length has already been cleared of all brush and trees, and excavation is actively in progress. The forebay site has been cleared of all loose material and objectionable surface earth which could not be used in the main body of the embankment, and some 300 head of stock and 150 men are now actively carrying on the excavating and placing of the earth for the embankment.

of the gorge, its length along the finished curved top will be 900 feet.

The reservoir to be created by the erection of the new dam will have a surface area of about 700 acres and a storage capacity of 4,000,000,000 cubic feet, or 30,000,000,000 gallons.

The watershed directly tributary to the reservoir has an area of fully 120 square miles, with an average annual rainfall of between 60 and 70 inches.

Owing to the generally rocky and precipitous character of the watershed, the percentage which the seasonal surface run-off bears to the gross precipitation on the watershed will be fully 50 per cent.

Thus, the average annual water product discharging from the above watershed into the proposed new Lake Spaulding will be equal to fully 8,000,000,000 cubic feet, or 60,000,000,000 gallons, or double the storage capacity of the proposed reservoir.

By the construction of the proposed main concrete dam across the gorge of the South Yuba the water surface of the proposed storage reservoir will be raised to such a height that it will be necessary to construct at two points of the divide on the northerly side of the lake two separate, comparatively low concrete dams. One or both of these will be so arranged that they will form capacious wasteweirs, or spillways, for such waters as will have to be wasted from the reservoir when the latter, during or immediately after the snow-melting season, has been filled to its utmost capacity. By the construction of these spillways the necessity of discharging such waste waters over the top of the high main concrete dam will be avoided.

The hydrographic features thus briefly outlined show that the reliability and constancy of the water supply from this source will be practically ideal.

In fact, I should be very much tempted, in spite of the already great height of 300 feet of the contemplated main dam, to still further increase the same, in order to bring the storage capacity more nearly up to the average annual water product of the tributary watershed if it were not for the necessity of having also to raise at considerable cost the two above-mentioned subsidiary lower spillway dams.

The ideal location of the proposed main dam in the precipitous narrow gorge of the Yuba, with its practically homogeneous rock bluffs on both sides of the river, fully excuses and justifies my above expressed desire of increasing the height of the dam above the contemplated height of 300 feet.

When, about seven years ago, I stood, like last week, on the rock bluff, the main body of which will form the southerly abutment of the proposed arch-shaped dam, I could not help feeling and expressing delight at seeing

one of the most admirably formed dam sites that I had ever beheld—admirable both from a topographical as well as geological point of view.

The dam, in all probability, will be built with the system of interlocking, keystone-shaped concrete blocks, built in place alternately, containing not less than 400 cubic yards each and similar to the dam built by me in San Mateo County, where it forms the large Crystal Springs reservoir of the Spring Valley Water Co. This same method was successfully employed in the construction of the large Barren-Jack dam in Australia.

The successful manner in which the above main Crystal Springs concrete dam resisted the tremendous wrenching to which it was subjected by the earthquake of April 18, 1906, although located close to the main fault-line, fully proved that the method of construction adopted by me, coupled with the first-class materials and thorough workmanship employed in its erection, fully justified the great care bestowed upon every portion of this important work.

The rock required for the concrete for the new Lake Spaulding dam, estimated at between 250,000 and 300,000 cubic yards of concrete, will be quarried out of or near the bluff over-topping the southerly abutment of the same, while the necessary gravel and sand is found of excellent sharp-grained quality and in great abundance, in a large nearby moraine—a remnant of the glacial period.

The successful construction and completion of the proposed new concrete dam for the greater Lake Spaulding, owing to its height as well as its great economic value for developing the resources of our state, will not only reflect credit upon the company that had the foresight and boldness to undertake this magnificent work, but also upon the engineering talent employed in its conception, design, and successful construction.

TABLE 1.—Climatological data for September, 1912. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
Oregon.																				
Klamath Agency	Klamath	4,169	4	51.4		90	12	26	29†	56	1.30		0.50							N. D. Ginsbach.
Klamath Falls	do.	4,100	23	54.8	— 3.4	83	18	31	24	39	1.04	+ 0.51	0.71	0	5	17	8	5	nw.	Augusta J. Hayden.
Lakeview	Lake	4,825	29																	Ralph C. Koozer.
Merrill	Klamath	4,070	6																	Mrs. Agnes Ritchson.
Yonah	do.	4,146	5	52.7		85	17	22	22†	60	0.88		0.33	0	4	6	17	7	sw.	Jacob Rueck.
California.																				
Alameda	Alameda	19	2																	Chas. E. Sears.
Alturas	Modoc	4,460	8	55.6		90	18	25	25	59	0.84		0.53	0	5	20	7	3	nw.	Prof. C. B. Towle.
Angiola	Tulare	208	12	71.6	— 0.2	101	19	50	2†	38	1.1	— 0.35	0.71	0	0	23	0	7	nw.	Santa Fe Co.
Antioch**	Contra Costa	46	33	73.4	+ 2.3	92	23	52	17		0.18	— 0.10	0.18	0	1	23	0	7		Southern Pacific Co.
Aptos**	Santa Cruz	102	27	64.0	+ 3.1	88	12	50	30		0.97	+ 0.45	0.82	0	2	21	1	8	nw.	Do.
Arrowhead Springs	San Bernardino	2,000	3																	Dr. E. A. Crokat.
Auburn	Placer	1,360	41	67.6	— 3.4	97	26	40	11	45	1.72	+ 1.19	1.00	0	4	21	1	8	ne.	Southern Pacific Co.
Avalon	Los Angeles	30	2	65.6		98	19	54	5	35	0.00		0.00	0	0	29	1	0	w.	T. S. Manning.
Azus	do.	540	10	70.2	— 0.8	101	19	44	4	49	0.00	— 0.28	0.00	0	0	27	2	1	sw.	A. P. Griffith.
Bagdad	San Bernardino	754	9	86.7		104	19	63	27	33	0.00		0.00	0	0					Santa Fe Co.
Bakersfield	Kern	404	23	73.2	— 1.5	96	19	52	5†	36	0.00	— 0.19	0.00	0	0	30	0	0		Do.
Barstow	San Bernardino	2,105	9	73.4		101	20	47	5	41	0.00	— 0.16	0.00	0	0	30	0	0	w.	E. L. White.
Berkeley	Alameda	317	25	65.3	+ 3.9	101	18	48	3	35	1.46	+ 0.88	0.90	0	3	17	5	8	sw.	State University.
Biggs**	Butte	98	13	72.1	+ 0.5	95	11	58	4†		4.58	+ 4.12	2.85	0	4	26	1	3	s.	Southern Pacific Co.
Bishop	Inyo	4,450	17																	Paul E. Lodge.
Bishop Creek	do.	8,500	2	49.7		66	1†	26	5	30	0.00		0.00	0	0	27	0	3		Do.
Blocksburg	Humboldt	1,700	6	61.2		93	18†	40	2	44	6.43		1.38	0	8	13	6	11	nw.	Victor Hope.
Blue Canon	Placer	4,695	13	54.5	— 4.9	79	17	32	3†	40	3.63	+ 2.56	1.78	0	4	25	0	5		Southern Pacific Co.
Blythe	Riverside	268	3	74.8		107	20	41	27	59	7†		1.78	0	0	25	2	3	ne.	D. H. Carey.
Branscomb	Mendocino	2,000	12	60.6		95	19	38	4†	45	5.60	+ 4.45	2.88	0	0	20	4	6	n.	A. J. Hann.
Brawley	Imperial	— 105	3	79.9		107	20	55	0		0.00		0.00	0	0					M. D. Witter.
Burney	Shasta	3,300	2	56.0		98	18†	30	25†	52	3.56		2.24	0	4	16	4	10	sw.	Mrs. M. D. Chambers.
Cahuilla	Riverside	3,600	1	61.5		94	18	29	5	54	0.00		0.00	0	0	25	4	1	sw.	Carl Stevens.
Calaxico	Imperial	0	7	81.0		108	19	55	5	39	0.00		0.00	0	0	30	0	0	nw.	J. E. Peck.
Caliente**	Kern	1,290	36	77.9	+ 2.9	96	22	58	17		0.27	+ 0.18	0.27	0	1	22	0	8		Southern Pacific Co.
Calistoga	Napa	363	40	63.5	— 3.2	99	18	50	2†		3.41	+ 2.93	2.40	0	3	22	0	8		Do.
Campbell	Santa Clara	217	15	64.4	+ 1.4	98	18	42	5	40	0.47	+ 0.04	0.34	0	3	23	2	2	nw.	F. M. Richter.
Campontonville (near)	Yuba	3,500	5	67.2		100	18	40	5	40	2.64		2.21	0	5	22	2	6	sw.	Cal. Gas & Electric Co.
Cedarville	Modoc	4,675	18	56.5	— 2.6	86	18†	30	9	47	0.72	+ 0.17	0.18	0	5	20	10	0	sw.	T. H. Johnstone.
Chico	Butte	159	42	69.4	— 5.2	94	12†	45	25	45	4.84	+ 4.34	4.26	0	3	24	0	6	sw.	C. H. Stephenson.
China Flat	Humboldt	600	3	65.2		92	15	42	25	42	4.79		2.36	0	7	20	2	8	w.	O. I. Westberg.
Chino**	San Bernardino	714	20	74.7	+ 2.4	90	13†	56	3		0.00	— 0.10	0.00	0	0	25	0	5		Southern Pacific.
Cisco**	Placer	5,939	41	61.1	+ 5.4	82	15†	42	7		3.08	+ 2.47	2.10	1.0	4	24	2	4		Do.
Cloremont	Los Angeles	1,200	20	71.0	+ 0.4	103	18	45	4	48	7†	— 0.13	1.00	0	0	19	10	1	w.	Prof. F. P. Brackett.
Cloverdale	Sonoma	340	10	66.4	— 1.2	103	18	42	3	47	2.79	+ 2.13	1.82	0	5	22	1	7	s.	John O. Ogle.
Coalinga	Fresno			74.1		106	20	47	5†	49	0.00		0.00	0	0	26	0	4	n.	Union Oil Co.
Colfax	Placer	2,421	41	64.3	— 5.2	94	19	42	4†	33	2.80	+ 2.14	1.45	0	4	18	3	9	n.	Southern Pacific Co.
Colusa	Colusa	60	9	67.4		94	18	49	3	36	3.20	+ 2.88	2.03	0	3	23	0	7	n.	C. D. McComish.
Corning**	Tehama	277	26	73.7	— 0.2	95	18	52	6		0.01	+ 4.19	3.72	0	3	20	7	3	s.	Southern Pacific Co.
Cuyamaca	San Diego	4,677	13	50.9	— 0.2	83	20	33	4		0.01	— 0.59	0.01	0	1	25	5	0	e.	L. L. Macquarie.
Davisville	Yolo	51	40	68.2	— 3.8	100	18	39	24	50	1.22	+ 0.96	1.11	0	3	21	6	3	n.	S. H. Brackett.
Deer Creek	Nevada	3,700	5	57.4		88	18	34	5	42	3.54		1.27	0	6	23	3	4	w.	Cal. Gas & Electric Co.
Del Monte	Monterey	25	1	65.4		89	18	50	17	27	0.20		0.15	0	2	22	5	3	w.	H. R. Warner.
Delta	Shasta	1,138	27	67.4	— 2.3	94	21	45	13	42	3.75	+ 2.64	2.35	0	5	23	1	6	sw.	Southern Pacific Co.
Denair	Stanislaus	126	12	66.6	— 4.5	96	13†	38	25	56	0.10	— 0.07	0.10	0	1	22	3	5	nw.	Santa Fe Co.
De Sabla	Butte	2,560	8	63.0		91	18	39	3	38	7.15		5.20	0	4	18	6	6	sw.	Cal. Gas & Electric Co.
Dobbins (near)	Yuba	1,650	8	70.2		100	18	50	5†	38	1.82		1.37	0	4	17	8	5	s.	Do.
Dowdville	Sierra	3,150	1	61.0		94	18	38	9†	50	3.23		2.02	0	5	17	8	5	s.	J. T. Mason.
Dudley	Kings	595		77.4		102	13†	48	4	43	0.00		0.00	0	0	18	12	0	nw.	Union Oil Co.
Dudleys	Mariposa	3,000	3	59.6		89	18	33	5	43	1.42		0.67	0	3	19	8	3	nw.	W. H. Dudley.
Dunlap (near)	Fresno	2,800	35	78.1	+ 1.5	98	18†	58	4		4.02	+ 3.61	2.75	0	2	23	2	2	n.	U. S. Forest Service.
Dunnigan**	Yolo	65	23	57.1	— 4.2	94	19	38	2†		4.18	+ 3.04	2.30	0	5	24	0	6	n.	Southern Pacific Co.
Dunsmuir**	Siskiyou	2,285	17	68.4	— 1.8	93	18†	45	3	40	5.56	+ 4.81	5.37	0	4	20	6	4	n.	Do.
Durham	Butte	160	17	68.4	— 1.1	100	20	49	3†	45	0.00	— 0.12	0.00	0	0	30	0	0	sw.	R. W. Durham.
El Cajon	San Diego	482	13	69.8		90	13†	50	4†	34	3.39		1.40	0	4	24	3	3	sw.	H. H. Kessler.
Electra	Amador	725	8	69.1		90	13†	50	4†	34	3.39		1.40	0	4	24	3	3	sw.	Cal. Gas & Electric Co.
Elsinore	Riverside	1,234	17	71.4	— 1.6	106	18†	40	4	54	0.00		0.16	0	0	24	5	1	w.	A. F. Schult.
Emigrant Gap	Placer	5,230	38																	Southern Pacific Co.
Esccondido	San Diego	657	18	68.2	— 0.3	100	20	44	4†	46	0.14	+ 0.06	0.14	0	1	6	24	0	w.	A. R. Moon.
Eureka	Humboldt	64	26	57.2	+ 2.3	71	10	46	24	19	2.40	+ 1.02	1.04	0	7	9	8	13	sw.	U. S. Weather Bureau.
Farmington**	San Joaquin	111	33	76.2	+ 4.2	98	22	59	30		0.93	+ 0.57	0.93	0	1	26	1	3	nw.	Southern Pacific Co.
Folsom	Sacramento	252	40	69.0	— 2.8	98	18	51	5	40	1.55	+ 1.1.1								

TABLE 1.—Climatological data for September, 1912. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
California—Continued.																				
Independence.	Inyo.	3,907	16	65.8	- 3.3	91	19	39	5	38	0.00	- 0.07	0.00	0	0	26	4	0	nw.	U. S. Weather Bureau.
Indio.	Riverside.	- 20	34																	F. N. Johnson.
Inskip.	Butte.	4,975	5	61.0		84	18	32	3	38	7.12		4.79	0	5	16	8	6		Cal. Gas & Electric Co.
Jonestown.	Amador.	287	34	72.2	+ 0.6	94	11	54	5	51	2.34	+ 1.96	1.84	0	3	24	0	6	nw.	Southern Pacific Co.
Kennett.	Tuolumne.	1,471	9	67.4		95	18	43	5	40	1.20		0.42	0	4	26	0	4		Sierra Railway Co.
Kentfield.	Shasta.	730		69.4		99	18	43	3	42	3.52		2.11	0	4	20	8	2	ne.	O. J. Eggleston.
King City.	Marin.	65	24	64.4		98	18	45	26	48	4.24	+ 3.36	3.20	0	5	22	4	4		Miss M. E. Parsons.
Lake Eleanor.	Monterey.	333	25	71.3	+ 4.5	101	12	42	13	58	0.02	- 0.21	0.02	0	1	25	0	5		Southern Pacific Co.
La Porte.	Tuolumne.	4,700	2	57.9		87	18	33	5	43	1.85		1.07	0	2	22	5	3		O. J. Todd.
Le Grand.	Plumas.	5,000	18	55.2	0.0	81	18	35	4	33	3.53	+ 1.64	2.30	0	5	19	8	3	s.	Chas. W. Hendel.
Lemon Cove.	Merced.	255	12																	Santa Fe Co.
Lick Observatory.	Tulare.	600	17	74.4	- 0.5	101	13	41	4	48	T.	- 0.45	T.	0	0	21	7	2	w.	G. W. Sandidge.
Livermore.	Santa Clara.	4,209	23	60.4	- 2.2	84	18	37	3	21	2.01	+ 1.65	1.62	0	5	20	4	6	n.	The Director.
Lodi.	Alameda.	485	41	69.2	+ 1.0	100	12	46	5	47	0.48	+ 0.15	0.39	0	4	21	4	5	w.	E. G. Still.
Lone Pine.	San Joaquin.	45	30	68.4	- 1.3	96	18	48	25	37	0.77	+ 0.34	0.58	0	3	23	5	2	w.	Ezra Fiske.
Long Valley.	Inyo.	2,728	7	62.8		93	23	33	6	50	0.00		0.00	0	0	29	1	0	s.	G. F. Marsh.
Los Angeles.	Lassen.	4,400	3	58.0		86	19	36	9	43	0.47		0.18	0	3	16	11	3	sw.	A. G. Evans.
Los Banos.	Los Angeles.	293	35	68.6	+ 2.1	100	19	54	13	38	0.00	- 0.08	0.00	0	0	20	9	1	sw.	U. S. Weather Bureau.
Los Gatos.	Merced.	121	25	72.2	- 0.6	97	14	60	4	57	0.00	- 0.13	0.00	0	0	20	0	10	w.	Southern Pacific Co.
MacCloud.	Santa Clara.	600	25	66.4	+ 0.8	97	18	45	3	45	1.59	+ 1.02	1.50	0	3	22	2	6	n.	F. H. McCullagh.
MacDoel.	Siskiyou.	3,410	2	55.5		80	18	32	3	36	4.76		2.05	0	6	22	2	6	s.	F. F. Spencer.
Madeline.	do.	4,528	7	52.6		83	18	27	25	53	1.79		1.07	0	4	16	3	11	n.	Butte Valley Land Co.
Magalia.	Lassen.	5,270	3	52.4		85	18	25	25	54	0.57		0.30	0	3	18	5	7	nw.	J. H. Williams.
Mammoth Tank.	Butte.	2,321	8	64.7		96	18	40	3	40	9.03		4.33	0	4	22	3	5	se.	Butte Co. R. R. Co.
Maricopa.	Imperial.	257	34	86.2	- 3.8	111	19	62	5	41	0.00	- 0.04	0.00	0	0	30	0	0		Southern Pacific Co.
Marysville.	Kern.	640	1	74.8		100	19	50	4	37	0.01		0.01	0	1	19	8	3	n.	Union Oil Co.
Mecca.	Yuba.	67	41	69.6	- 4.4	98	18	47	3	42	2.40	+ 2.06	1.45	0	3	23	0	7	s.	Southern Pacific Co.
Menlo Park.	Riverside.	-185	6	81.3		109	19	54	10	45	0.00		0.00	0	0	28	2	0	e.	E. A. Palmer.
Merced.	San Mateo.	64	34	73.7	+ 9.6	96	18	54	27	4	0.65	+ 0.33	0.50	0	3	20	6	4		Southern Pacific Co.
Middlewater.	Merced.	173	38	74.2	+ 0.5	100	14	50	3	39	0.13	- 0.09	0.13	0	1	26	1	3	nw.	Santa Fe Co.
Mill Creek (1).	Kern.		5	67.9		93	18	39	5	42	3.49		1.78	0	4	20	8	2	n.	Union Oil Co.
Milton (near).	Amador.	660	21	71.0	- 0.6	96	18	51	4	30	1.60	+ 1.20	1.29	0	3	24	3	3	nw.	Cal. Gas & Electric Co.
Modesto.	Stanislaus.	90	40	76.7	+ 2.0	95	13	60	4		0.25	+ 0.05	0.25	0	1	28	0	2		E. H. Southwick.
Mojave.	Kern.	2,751	35	72.0	- 1.9	91	20	48	3	22	0.00	- 0.08	0.00	0	0	25	5	0	sw.	Southern Pacific Co.
Mokelumne Hill.	Calaveras.	1,550	19	69.3	+ 1.5	93	18	45	4	33	3.12	+ 2.53	1.68	0	4	20	3	7		Do.
Mono Ranch.	Ventura.	3,210	6	61.0		89	18	34	5	50	0.00		0.00	0	0	21	9	0	w.	C. E. Prindle.
Montague.	Siskiyou.	2,450	24	59.5	- 6.8	87	18	31	25	51	2.30	+ 1.98	1.52	0	7	17	6	7	n.	Herbert Lathrop.
Monterey.	Monterey.	15	47	67.4	+ 5.9	90	17	56	26	1	0.19	- 0.08	0.15	0	2	25	5	0	se.	I. E. Deboy.
Monterey.	Kern.	4,500	13	58.6	- 11.8	76	2	40	13	28	0.00	- 0.21	0.00	0	0	17	3	10	nw.	Southern Pacific Co.
Mount Tamalpais.	Marin.	2,375	13	63.7	- 2.4	87	18	45	3	17	2.35	+ 1.83	2.10	0	6	20	4	6	nw.	John C. Knecht.
Napa City.	Napa.	20	35	65.0	+ 2.0	95	11	40	5	47	2.37	+ 1.86	2.00	0	2	14	16	0	s.	U. S. Weather Bureau.
Napa (S. H.).	do.	60	34	68.8	+ 2.8	103	18	50	4	41	2.52	+ 2.01	1.50	0	2	10	14	6	sw.	Alex. Hall.
Needles.	San Bernardino.	477	20	78.4	- 5.3	100	18	55	26	37	0.00	- 0.24	0.00	0	0	30	0	0		W. H. Martin.
Nellie.	San Diego.	5,350	3																	Santa Fe Co.
Nevada City.	Nevada.	2,580	20	62.0	- 0.2	96	18	38	5	52	2.68	+ 1.91	1.11	0	5	20	6	4	sw.	T. O. Bailey.
Newhall.	Los Angeles.	1,200	35	71.0	- 0.5	106	17	50	27	5	0.00	- 0.40	0.00	0	0	24	0	6	se.	S. W. Marsh.
Newman.	Stanislaus.	91	23	72.5	- 1.1	104	19	49	5	41	0.14	- 0.06	0.12	0	2					Southern Pacific Co.
North Bloomfield.	Nevada.	3,214	15	64.0	+ 0.2	91	18	44	5	30	3.15	+ 2.03	2.00	0	2	22	3	5	s.	E. S. Wengenheim.
North Fork.	Madera.	3,000	8																	J. R. McIntosh.
Oakdale.	Stanislaus.	156	18	73.2	+ 2.8	98	18	54	4	4	0.59	+ 0.38	0.32	0	3	25	4	1	nw.	U. S. Forest Service.
Oak Grove.	San Diego.	2,751	2	65.4		99	19	33	5	49	0.00		0.00	0	0	24	6	0	nw.	Southern Pacific Co.
Oakland.	Alameda.	36	36	64.5	+ 3.3	94	18	52	5	32	0.93	+ 0.47	0.68	0	3	11	10	9	w.	B. L. Johnson.
Oceanside.	San Diego.	60	2	71.0		91	19	56	4	25	T.		T.	0	0	21	4	5	w.	Chabot Observatory.
Ojai Valley.	Ventura.	900	6	68.4		108	19	42	5	52	0.00		0.00	0	0	26	4	0	sw.	H. D. Brodie.
Orland.	Glenn.	254	30	71.2	- 5.5	98	18	47	2	39	3.82	+ 3.42	3.05	0	4	22	2	6	n.	W. H. Duncan.
Orleans.	Humboldt.	520	9	70.0		97	14	44	25	50	4.64		1.90	0	8	19	0	11		U. S. Reclamation Service.
Oroville (near).	Butte.	250	28	70.0	- 3.0	95	18	48	3	36	3.43	+ 2.72	2.04	0	4	24	1	5	s.	F. T. Hale.
Palermo.	do.	213	21	63.0	- 7.3	89	19	35	6	45	2.20	+ 1.50	2.20	0	1	21	7	2		E. D. Fairchild.
Palm Springs.	Riverside.	584	23	83.4	- 1.2	108	27	67	6	6	0.00	- 0.09	0.00	0	0	29	1	0	w.	Western Pacific Co.
Pasadena.	Los Angeles.	827	22	67.0	- 2.6	97	19	43	4	46	0.00	- 0.15	0.00	0	0	27	2	1	sw.	Southern Pacific Co.
Paso Robles.	San Luis Obispo.	800	25	66.2	+ 0.1	102	14	32	2	63	0.04	- 0.25	0.04	0	1	28	0	2	nw.	E. D. Sorver.
Peachland.	Sonoma.	190	16	63.6	- 0.1	101	18	41	3	48	2.94	+ 2.24	2.00	0	4	18	8	4	sw.	Dr. F. W. Sawyer.
Placerville.	El Dorado.	1,875	23	62.6	- 0.9	86	18	44	5	34	3.33	+ 2.61	2.10	0	3					E. H. Parnell.
Point Lobos.	San Francisco.	250	19	61.6	+ 2.6	89	18	50	26	23	1.27	+ 0.69	1.10	0	4	9	4	17	nw.	A. Baring-Gould.
Point Reyes.	Marin.	490	20	58.0	+ 1.8	85	18	48	25	27	1.91	+ 1.07	1.77	0	4	12	4	14		

TABLE 1.—Climatological data for September, 1912. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
California—Continued.																				
Selma **	Fresno	311	26																	Southern Pacific Co.
Seven Oaks	San Bernardino	5,000	2																	M. Lewis.
Shasta	Shasta	1,048	16																	Dr. T. J. Edgecomb.
Sierra Madre	Los Angeles	1,400	15	70.0	-0.5	96	19	50	4	35	T.	-0.41	T.	0	0	18	4	8	s.	Mrs. A. E. Gregory.
Sierraville	Sierra	5,000	2	53.4		87	18	24	3	54	1.23		0.43	0	4	18	3	9	sw.	C. D. Johnson.
Sisson	Siskiyou	3,555	23	55.1	-3.3	80	13†	28	2	40	3.12	+2.22	1.85	0	5	17	3	10	n.	Southern Pacific Co.
Soledad **	Monterey	188	38	71.0	+6.1	95	15	60	5†		0.00	-0.12	0.00	0	0	19	0	11	n.	Do.
Sonora	Tuolumne	1,825	24	66.5		90	18	45	5	36	1.27	+0.62	0.46	0	4	20	6	4	nw.	Chas. P. Jones.
Southeast Farallon	San Francisco	30	9																	U. S. Weather Bureau.
Springville	Tulare	4,000	5	62.8		89	18	32	5	38	0.35		0.25	0	2	27	0	3		D. L. Wishon.
Squirrel Inn	San Bernardino	5,280	2	60.9		82	19	36	4	30	0.00		0.00	0	0	28	2	0	n.	A. D. Frantz.
Stanwood	Butte	2,140	8	73.6		92	25	50	1†	30	4.85		2.00	0	4	24	1	5	s.	Cal. Gas & Electric Co.
Stirling City	do	3,525	8	63.4		91	18	32	3	40	9.15		4.20	0	5	14	8	8	se.	Butte Co. R. R. Co.
Stockton (S. H.)	San Joaquin	23	41	68.4	-0.6	96	18	50	5	36	1.39	+1.18	0.70	0	4	24	4	2	nw.	State Hospital.
Storey	Madera	296	12	71.4	+0.3	100	18	45	5	46	0.00	-0.13	0.00	0	0	30	0	0		Santa Fe Co.
Suisun **	Solano	20	32																	Southern Pacific Co.
Sulphur Banks	Lake	1,350		65.2		91	20	43	4	41	2.69		1.89	0	5	20	4	6	w.	J. T. La Bree.
Summerdale	Mariposa	5,270	16	59.5	-1.4	84	18	33	4	34	1.19	-0.07	0.75	0	2	17	7	6	w.	Bertus Gude, Jr.
Summit	Placer	7,017	39	47.2	-6.5	69	20	28	9	26	0.81	+0.42	0.35	3.0	4	24	0	6	sw.	Southern Pacific Co.
Susanville	Lassen	4,175	23																	James Branham.
Tamarack	Alpine	8,000	6	44.2		70	20†	20	12	41	2.15		0.95	14.0	5	21	2	7	sw.	Cal. Gas & Electric Co.
Tehachapi **	Kern	3,964	35	68.9	+2.8	86	19	50	3		0.01	-0.10	0.01	0	1	25	4	1	w.	Southern Pacific Co.
Tehama	Tehama	1,220	41	67.4	-6.9	90	18	50	4		5.86	+5.50	3.60	0	4	22	1	7	n.	Do.
Tejon Rancho	Kern	1,500	10	63.4†		85	23	45	4	30	0.17		0.17	0	1					S. E. Bailey.
Three Rivers	Tulare	870	2	69.9		98	18	41	4	48	0.03		0.03	0	1	20	5	5	sw.	E. D. Barton.
Towle	Placer	3,704	26	66.5	+3.2	92	11	40	9	50	3.02	+1.49	2.00	0	2	20	1	9		Southern Pacific Co.
Tracy **	San Joaquin	64	32	74.0	+2.0	96	18†	57	6		0.19	-0.02	0.17	0	2	20	5	5	nw.	Do.
Ukiah	Mendocino	620	19	65.5	-0.1	96	18	39	5	47	2.93	+2.36	2.00	0	5	19	6	5	nw.	Dr. Geo. McCowen.
Upper Lake	Lake	1,350	27	65.1	-1.8	99	18	37	4	52	2.56	+2.10	1.48	0	5	21	2	7	nw.	C. M. Hammond.
Vacaville	Solano	175	24	69.8	-1.0	104	18	49	16†	45	1.11	+0.68	0.60	0	2	23	6	1	sw.	G. C. Coburn.
Valley Springs **	Calaveras	673	23	74.3	+2.2	99	13	60	3		1.64	+1.16	1.40	0	2	20	4	6	nw.	Southern Pacific Co.
Visalia	Tulare	334	24								0.00	-0.42	0.00	0	0	26	0	4	se.	Santa Fe Co.
Warner Springs	San Diego	3,165	4	66.6		95	18	37	4	41	0.00		0.00	0	0	29	1	0	se.	Mrs. F. S. Sandford.
Wasco	Kern	336	12	71.8	-0.8	99	14	43	16†	55	T.	-0.33	T.	0	0	27	2	1	se.	Santa Fe Co.
Watsonville	Santa Cruz	23	16	58.8	-1.7	90	11†	35	30	54	0.66	+0.29	0.61	0	2	9	20	1	w.	Speckles Sugar Co.
Weaverville	Trinity	2,162		60.6		90	19	35	25	50	3.67		1.82	0	7	20	0	10	w.	U. S. Forest Service.
Weitchpec	Humboldt	1,700	2	61.5		88	14†	43	1	34	5.96		2.00	0	8	20	5	5	sw.	M. E. Lathrop.
Westley **	Stanislaus	90	23	72.7	-1.3	98	18	56	16		0.00	-0.22	0.00	0	0	27	0	3	n.	Southern Pacific Co.
Wheatland	Yuba	84	25	68.8	-1.1	95	18	51	3†	40	2.02	+1.51	1.46	0	4	22	2	6	nw.	William Lumbard.
Willows	Glenn	136	33	75.3	-0.3	99	18	54	3	33	3.37	+3.06	2.60	0	3	20	4	6	n.	E. C. Mills.
Yosemite	Mariposa	3,945	8	60.6		95	18	29	5	58	1.68		1.30	0	2	24	1	5	s.	J. P. Kelley.

\* , b , c , etc. , indicate respectively 1 , 2 , 3 , etc. , days missing from the record.

\*\* Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—Daily precipitation for September, 1912. District No. 11, California.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>Oregon.</i>																																
Klamath Agency.....	Klamath.....		.40		.50	.40																										1.30
Klamath Falls.....	do.....	T.	.07	.03		.19	.71	.04																							T.	1.04
Lakeview.....	Pitt.....																															
Long Valley.....	do.....																															
Merrill.....	Interior drain- age.....																															
Yonna.....	do.....		.21	.02		.32	.33																									0.88
<i>California.</i>																																
Aguanga.....	Coast.....																															0.00
Alameda.....	do.....																															0.00
Alturas.....	Sacramento.....	.03		.53	.05		.03	.23																								0.87
Angels Camp.....	San Joaquin.....		.51	.61		T.	.97								T.																	2.09
Angiola.....	do.....			T.																												T.
Antelope Valley.....	do.....																															0.00
Antioch.....	do.....						.18																									0.18
Aptos.....	Coast.....					.15		.82																								0.97
Arrowhead Springs.....	do.....																															
Auburn.....	Sacramento.....			.01	1.00		.01	.70																								1.72
Avalon.....	Ocean.....																															0.00
Azusa.....	Coast.....																															0.00
Bagdad.....	Desert.....																															0.00
Bakersfield.....	San Joaquin.....																															0.00
Barstow.....	Desert.....																															0.00
Bear River.....	San Joaquin																															

TABLE 2.—Daily precipitation for September, 1912. District No. 11—Continued.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
<i>California—Con.</i>																																
Fouts Springs.	Sacramento.	.05	.09	.03	.79	1.14	T.																									2.10
Fredalba.	Coast.																															0.00
Fresno.	San Joaquin.		.10				T.																									0.10
Friant.	do.																															†T.
Fruto.	Sacramento.																															
Galt.	San Joaquin.																															
Georgetown.	do.		1.32	.35			.05	1.90																								3.62
Gilroy.	Coast.	.05					.03	.63																								0.71
Gilta.	do.	.48	.36		2.73	1.06	.29	.03																								5.51
Glendora.	do.																											13			.01	
Glen Ranch.	do.			.03																												0.03
Glennville.	San Joaquin.		.06				T.																									0.06
Glenwood.	Coast.	.13	T.				.20	2.14																								2.47
Gold Run.	Sacramento.	1.00		.20			.05	1.70																								2.95
Gonzales.	Coast.					T.																										T.
Grass Valley.	Sacramento.	.96	.02				1.40	.49																				T.				2.87
Greenland Ranch.	Desert.																															
Greenville.	Sacramento.	T.	.41			T.	1.25	.30																								1.96
Gridley.	do.																															
Groveland.	San Joaquin.	.18	.63	.41			.54	.80																								2.56
Guinda.	Sacramento.																															0.00
Hanford.	San Joaquin.																															0.00
Head Dam.	Sacramento.		.51	.05	.05	1.66	.02																									2.29
Healdsburg.	Coast.	.21	.03		3.10	.23																										3.57
Hearst.	do.	.20	.30		1.50	1.35	1.25																									



TABLE 2.—Daily precipitation for September, 1912. District No. 11—Continued.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
California—Contd.																																
Tracy.....	San Joaquin.....				T.	.02	.17																									0.19
Tulare.....	do.....																															0.00
Tustin (near).....	Coast.....																															0.00
Ukiah.....	do.....		.12	.16	.30	.35	2.00																					T.				2.93
Upland.....	do.....																															
Upper Lake.....	Sacramento.....		.11	.22	.05	.70	1.48																									2.56
Upper Matole.....	Coast.....		.39	.77	.12	1.90	1.90	.80																				T.				5.88
Vacaville.....	Sacramento.....					.51	.60																									1.11
Valley Springs.....	San Joaquin.....			.24				1.40																								1.64
Visalia.....	do.....																															0.00
Warner Springs.....	Coast.....																															0.00
Wasco.....	San Joaquin.....	T.																														T.
Watsonville.....	Coast.....		.05				.61																									0.66
Weaverville.....	do.....		.27	.25		1.21	1.82	.06																								3.67
Weitchpec.....	Klamath.....		1.12	1.15		2.00	1.27	.29																					.01	.05	T.	5.96
West Branch.....	Sacramento.....			.91	T.	.35	4.84	.78																					.06	.02		6.88
Westley.....	San Joaquin.....																															0.00
West Point.....	do.....			.53	.38			2.16																								3.07
West Saticoy.....	Coast.....																															0.00
Wheatland.....	Sacramento.....			.49	.01	.06	1.46																									2.02
Willows.....	do.....			.20		.57	2.60																						T.	T.		3.37
Yosemite.....	San Joaquin.....			1.30				.38																								1.68

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

|| Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE NO. 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 11, California.

Date	California.																					
	Alturas, §§		Barstow.		Branscomb.		Brawley.		Colusa.		Eureka.		Fresno.		Independence.		Los Angeles.		Mount Tamalpais.		Nevada City.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	78	37	94	60	74	47	96	62	84	55	63	52	88	63	85	53	76	62	62	48	78	46
2.....	68	56	91	62	55	46	95	64	82	53	64	53	80	57	84	53	75	61	53	46	66	45
3.....	56	36	83	60	55	41	94	65	71	49	58	51	71	53	78	58	72	58	54	45	62	43
4.....	56	40	78	52	65	38	82	59	70	51	60	47	74	51	66	41	71	56	59	45	65	42
5.....	58	38	84	47	55	41	89	60	65	52	60	52	79	49	72	39	76	56	54	45	63	38
6.....	58	47	89	50	57	38	92	55	68	54	62	55	78	56	79	50	75	55	54	49	64	38
7.....	58	49	82	54	69	42	95	63	69	54	62	53	79	60	76	54	72	57	60	50	68	45
8.....	62	34	84	59	75	44	90	60	72	52	61	54	79	55	72	50	75	59	63	49	73	40
9.....	71	30	85	58	80	46	92	62	72	51	66	50	85	54	74	50	77	57	73	57	82	38
10.....	77	30	80	55	84	46	95	55	79	53	71	52	92	57	76	59	82	58	75	64	85	38
11.....	81	34	81	54	85	47	98	58	83	51	65	51	96	59	80	48	86	55	76	68	88	42
12.....	85	35	90	55	88	51	102	56	88	52	60	52	96	61	84	52	81	58	83	71	91	39
13.....	87	36	86	55	90	53	103	62	87	61	66	52	98	64	86	53	75	54	85	71	91	46
14.....	82	44	85	56	82	49	104	65	87	60	58	51	97	63	89	52	73	57	71	63	84	46
15.....	79	32	90	55	68	42	97	64	78	55	60	54	94	56	79	52	75	57	63	47	79	45
16.....	84	32	90	54	73	42	98	63	75	53	67	54	83	56	80	50	75	57	63	49	79	40
17.....	86	33	95	57	75	43	102	63	80	55	63	53	89	57	84	48	84	58	71	60	88	42
18.....	90	36	99	62	85	47	106	66	94	59	70	52	98	61	89	54	88	59	87	70	96	48
19.....	83	35	100	60	95	50	106	66	89	58	70	52	97	64	91	56	100	62	82	72	92	49
20.....	80	36	101	70	92	51	107	73	88	60	62	52	95	66	90	60	92	68	76	69	89	47
21.....	85	30	91	56	90	51	99	69	89	58	59	51	94	64	83	54	87	65	75	65	89	45
22.....	82	32	95	57	85	50	99	60	85	57	54	51	95	62	83	47	82	60	82	67	88	45
23.....	74	38	98	65	84	48	101	64	84	53	61	51	90	58	87	53	75	59	74	58	83	43
24.....	70	30	94	64	76	46	96	61	84	51	63	46	88	56	80	58	70	60	71	62	86	41
25.....	81	25	85	56	70	47	96	61	84	51	67	49	93	58	78	49	76	57	79	66	87	39
26.....	86	27	94	54	67	48	100	61	80	61	54	47	95	59	82	46	78	57	77	66	86	42
27.....	81	33	96	56	63	46	98	61	81	62	64	52	91	57	83	46	79	55	69	54	80	46
28.....	82	35	93	52	70	48	100	62	79	54	65	53	83	61	78	50	75	56	63	52	83	44
29.....	85	34	90	55	75	46	93	72	83	52	68	51	85	57	82	50	76	57	71	55	81	44
30.....	76	35	92	53	70	45	93	73	79	50	65	49	88	58	82	44	92	62	52	84	44	92
Mns.....	76.0	35.3	90.0	56.8	75.1	46.0	97.3	62.5	80.3	54.6	62.9	51.4	88.0	58.4	81.1	50.6	78.9	58.4	69.6	57.8	81.0	43.0

Date.	California.																	
	Redlands.		Sacramento.		San Diego.		San Francisco.		San Jose.		San Luis Obispo.		Santa Barbara.		Santa Rosa.		Sisson.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	81	57	77	57	70	64	65	53	75	51	75	50	68	57	79	47	77	37
2.....	81	57	73	55	69	61	70	55	77	54	73	46	75	52	69	47	68	28
3.....	72	59	68	53	72	61	64	54	69	50	66	53	63	40	50	33	48	32
4.....	73	46	72	52	70	56	67	55	72	50	66	50	72	50	72	43	51	36
5.....	79	45	70	52	69	54	67	54	73	46	75	42	72	47	62	44	54	38
6.....	83	46	62	56	71	56	64	59	67	59	69	53	72	49	63	55	55	34
7.....	80	48	71	55	70	58	68	59	73	54	71	57	74	54	72	52	64	36
8.....	73	56	76	54	70	61	67	53	74	54	72	52	75	51	76	71	60	35
9.....	85	47	82	55	71	59	80	56	84	47	83	47	73	50	88	47	68	37
10.....	91	50	84	56	71	60	85	60	88	53	91	50	77	50	90	46	74	38
11.....	94	55	88	59	71	59	88	61	90	53	92	57	73	50	92	47	75	42
12.....	96	56	90	61	71	57	89	63	93	53	86	53	72	55	93	49	77	45
13.....	96	55	92	62	68	59	71	54	93	52	81	50	69	56	90	50	80	49
14.....	82	49	88	58	68	59	61	54	73	54	67	49	64	56	75	51	75	40
15.....	82	54	72	55	68	60	65	56	73	54	67	53	67	60	68	52	70	44
16.....	89	50	78	53	68	60	69	58	74	48	71	54	70	51	77	53	75	41
17.....	100	53	84	56	72	58	81	58	85	48	94	48	80	49	88	47	76	43
18.....	102	65	95	64	76	62	94	69	99	58	84	56	79	53	101	53	80	40
19.....	102	62	94	64	86	64	81	62	92	60	91	58	102	56	89	53	80	42
20.....	96	65	92	63	85	65	69	57	88	56	90	57	78	58	82	55	75	41
21.....	98	59	92	59	78	61	64	56	77	49	75	54	79	60	79	46	75	44
22.....	91	60	87	58	70	62	58	53	73	50	74	48	78	55	73	46	80	50
23.....	81	55	85	54	69	63	62	54	75	53	65	52	68	57	74	52	72	41
24.....	75	57	84	55	67	61	68	53	80	50	70	54	70	51	80	54	64	34
25.....	93	49	87	58	70	57	70	52	85	48	75	52	65	52	85	41	71	37
26.....	93	52	91	55	71	61	62	52	76	52	75	50	68	55	75	48	80	45
27.....	90	53	83	53	68	60	67	55	74	53	72	50	70	54	80	49	70	44
28.....	84	52	80	60	71	60	67	58	74	55	77	52	68	54	79	55	73	43
29.....	85	53	85	56	72	60	68	56	77	48	82	54	72	53	82	46	74	44
30.....	91	57	80	57	75	59	63	56	75	50	84	55	88	53	79	50	68	38
Mns.....	87.3	54.1	82.1	56.9	71.6	59.9	70.5	56.5	79.3	52.1	77.1	51.9	73.8	53.6	79.2	49.0	70.4	39.8

a, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.

§ § Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## CLIMATOLOGICAL DATA FOR SEPTEMBER, 1912.

## DISTRICT No. 12, COLUMBIA RIVER.

EDWARD A. BEALS, District Editor.

Although the month averaged considerably cooler than usual this fact attracted but little attention on account of there being no very low temperatures. During the coldest weather clouds prevailed generally and the frosts that occurred were not damaging, except in a few exposed localities. Late crops matured nicely, and the season, notwithstanding the unusually heavy rains in midsummer, has been a prosperous one for the farmer. The lack of rain during the latter part of the month hindered fall plowing, and this work is not so far advanced as it was a year ago at this time. The weather was favorable for construction work, and there were no storms to interfere with the carrying trade either on land or sea. Country roads were good, which facilitated the hauling of produce to the railways and to city markets. There were scarcely any forest fires and the atmosphere was much clearer than usual at this time of year.

## TEMPERATURE.

Mean temperatures averaged between 50° and 60° over most of the district during September. Stations in the Montana and Wyoming watersheds, in southeastern Idaho, and central Oregon reported mean temperatures under 50°. The highest mean temperatures of the month were from 62° to 64° and occurred in the Columbia River district of eastern Oregon and southeastern Washington. The only portion of the district where temperatures were normal or above lay in western Washington and in a few localities in western Oregon. Everywhere to the east of the Cascade Mountains the weather was abnormally cool. In Idaho the mean temperature for the State was the lowest ever recorded. There was no hot weather in the district during the month and maximum temperatures above 90° were the exception. Freezing temperatures were reached at nearly all places east of the Cascades, except in southeastern Washington and along the Columbia River in Oregon. The lowest temperatures occurred mainly between the 20th and 25th.

The mean temperature as determined from 256 stations was 55°, or 2.2° below the normal. The highest mean temperature was 64.9° at Blalock, Oreg., and the highest maximum temperature was 94° at Dent, Wash., on the 11th. The lowest mean temperature was 40.3° at Pierson, Idaho, and the lowest minimum was 10° at the same place on the 8th.

## PRECIPITATION.

General rains fell during the first eight days of September in western Oregon and western Washington. Showers were light and infrequent in eastern Washington and eastern Oregon. In Idaho precipitation was rather evenly distributed and was about normal in amount. It

was slightly above normal in the Montana watershed and occurred mostly in two periods, viz, from the 1st to 8th, and from the 22d to 24th, inclusive. The total amounts for the month ranged from 5 inches on the Oregon coast to very light showers or none at all in portions of central Oregon and central Washington.

The average precipitation determined from 360 stations was 1.22 inches, or 0.26 inch below the normal. The largest monthly amount was 6.48 inches at Quiniault, Wash., and the largest 24-hour amount was 2.69 inches at Siskiyou, Oreg., on the 6th. No precipitation occurred during the month at Nutland, Wash., and Glencoe and Brogan, Oreg. Three inches of snow fell at Musick, Oreg., on the 2d, and many observers reported snow as visible on the mountains near their stations on the same date.

## MISCELLANEOUS PHENOMENA.

Killing frosts were experienced at a number of highly elevated stations, but little damage was reported, except to grain in the high latitudes of Idaho. A strong east wind swept down the Columbia from near the mouth of the Snake River to the sea on the 14th. It filled the air with dust which obscured the sun at some places. High wind velocities occurred at Lewiston, Tatoosh Island, and North Head. The maximum velocity at North Head for a period of five minutes was 64 miles per hour from the southeast. Fog occurred on several dates at Portland and Roseburg, and was of frequent occurrence at coast stations and on Puget Sound.

## THE RIVERS.

The Willamette River averaged 1.3 feet above normal. Light rains early in the month produced a general rise, and the highest readings were recorded on the 10th and 11th. At Salem the highest reading was 3.6 feet on the 10th, and at Portland 6.4 feet was reached on the same date. The lowest gage reading at Salem was only 0.3 foot on the last three dates of the month, and at Portland the lowest was 3 feet on the 21st.

The Columbia River averaged slightly above normal and its mean for the month was about 2½ feet lower than the mean for August. The highest water at Cascade Locks was 7.3 feet on the 2d and 3d, and the highest at Vancouver was 5.7 feet on the 10th. The lowest water at Cascade Locks was 3.4 feet on the 30th, and the lowest at Vancouver was 2.8 feet on the 21st and 30th.

The Snake River averaged nearly 2 feet above normal, and 1 foot higher than during the preceding month. Its flow was least at the beginning of the month, and the greatest from the 10th to 20th, with a slightly diminished flow thereafter. The highest reading at Lewiston was

3.3 feet on the 17th and 18th, and the lowest was 2 feet on the 1st and 2d.

SAMUEL L. BROOKS.

Mr. Samuel L. Brooks, the oldest cooperative observer in length of service in Oregon, died on September 8, 1912. He was nearly 82 years old, having been born in Burton, Ohio, on November 8, 1830. When a small child his parents moved to Beardstown, Ill., where his boyhood was spent. In 1850 the family came across the plains to Oregon and located on a "homestead" on the site of the present town of Brooks. About 1860 Mr. Brooks moved to The Dalles, Oreg., where he resided continuously until the time of his death.

He began keeping a record of the weather for his own pleasure with instruments purchased by himself in 1874, and he kept it with painstaking care continuously from that date until the day before he died. Mr. Brooks was among the first of the observers to cooperate with the Weather Bureau, and his long record is the most valuable one in the State, as it was kept by the same person and in the same place throughout its length.

Copies of his records are on file at the central office of the Weather Bureau in Washington, D. C., and at the local Weather Bureau office in Portland, Oreg. The originals have been donated to the Oregon Historical Society. They consist of the usual weather and temperature data, and in addition barometer readings, wind velocities, river stages, and copious phenological notes.

TABLE 1.—Climatological data for September, 1912. District No. 12, Columbia Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelting.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of cloudy days.
Montana.																				
Anaconda.	Deer Lodge.	5,300	10	45.8	- 2.8	75	30	21	29	44	2.26	+ 0.99	1.32	0.2	11	10	12	8	ne.	C. D. Demond.
Butte.	Silver Bow.	5,716	17	45.8	- 4.1	73	30	21	29	44	0.95	- 0.24	0.65	T.	3	8	10	12	ne.	J. R. Wharton.
Columbia Falls.	Flathead.	3,100	16	48.7	- 4.1	78	12	25	21	49	1.50	+ 0.64	0.55	0	9	16	2	12	sw.	J. M. Grist.
Como.	Ravalli.	3,700	3	49.0	0	74	18	28	15	35	1.23	- 0.77	0	0	6	15	6	9	sw.	Hiram Platt.
Dayton.	Flathead.	5,500	7	50.0	0	70	17	29	29	34	0.80	- 0.30	0	0	3	19	9	2	sw.	A. J. Ruechell.
East Anaconda.	Deer Lodge.	5,500	6	46.0	0	74	30	27	29	38	2.03	- 1.10	T.	0	7	10	8	12	sw.	C. D. Demond.
Fortine.	Lincoln.	2,975	6	46.6	0	73	11	27	30	55	1.62	- 0.49	0	0	11	13	6	11	w.	Mike Petery.
Hamilton.	Ravalli.	3,575	9	48.6	- 7.6	74	12	29	30	44	1.10	+ 0.19	0.56	0	6	16	2	12	n.	Hamilton Chamber of Commerce.
Hat Creek.	Powell.	6,000	2	47.9	0	80	11	19	21	53	2.75	- 1.20	0.83	5.9	13	7	9	14	w.	M. K. Landreth.
Haugan.	Missoula.	3,150	17	51.5	0	80	11	27	21	44	1.20	- 0.58	0	0	8	17	5	8	sw.	U. S. Forest Service.
Heron.	Sanders.	2,261	13	48.4	- 5.5	73	12	28	15	38	0.68	- 0.65	0.22	0	10	15	8	7	w.	E. Knott.
Kalispell.	Flathead.	2,965	13	48.4	- 5.5	73	12	28	15	38	0.68	- 0.65	0.22	0	10	15	8	7	w.	U. S. Weather Bureau.
Libby.	Lincoln.	2,055	2	49.8	0	80	12	20	25	53	1.30	- 0.68	0	0	7	14	4	12	sw.	U. S. Forest Service.
Lost Creek.	Deer Lodge.	5,200	2	50.2	- 5.4	88	30	25	21	56	2.22	+ 0.34	0.42	1.0	8	11	8	11	w.	Frank Henault.
Missoula.	Missoula.	3,225	32	50.2	- 5.4	88	30	25	21	56	2.22	+ 0.34	0.42	1.0	8	11	8	11	w.	U. S. Weather Bureau.
Ophir.	Powell.	6,800	3	45.3	- 4.9	71	30	22	29	47	1.52	+ 0.16	0.60	2.0	10	0	15	6	w.	E. S. Wilton.
Ovando.	do.	4,207	12	45.3	- 4.9	71	30	22	29	47	1.52	+ 0.16	0.60	2.0	10	0	15	6	w.	S. B. Whitmore.
Philipsburg.	Granite.	5,275	8	50.4	- 4.9	78	12	29	21	41	1.09	+ 0.41	0.50	0	9	4	9	4	sw.	G. T. Bramble.
Plains.	Sanders.	2,475	13	50.4	- 4.9	78	12	29	21	41	1.09	+ 0.41	0.50	0	9	4	9	4	sw.	James M. Self.
Pleasant Valley.	Flathead.	3,500	4	44.7	0	76	12	11	29	55	0.76	- 0.27	0	0	9	13	6	11	sw.	A. P. Stilman.
Poison.	do.	2,920	4	51.2	0	76	22	32	16	44	1.57	- 0.60	0	0	6	13	6	11	sw.	F. P. Brown.
Saint Ignatius.	Missoula.	2,700	6	49.4	0	79	12	26	21	40	1.64	- 0.41	0	0	9	14	0	16	nw.	U. S. Reclamation Service.
Saltese.	do.	3,600	7	48.7	0	76	30	26	21	45	1.38	- 0.76	0	0	3	22	0	8	w.	E. K. Tarbox.
Stevensville.	Ravalli.	2,462	1	48.7	0	76	30	26	21	45	1.13	- 0.43	0	0	7	20	2	8	w.	University Orchard Co.
Thompson Falls.	Sanders.	2,462	1	52.0	0	81	11	26	21	47	1.16	- 0.31	0	0	10	16	10	4	w.	U. S. Forest Service.
Willow Glen Stock Farm.	Deer Lodge.	5,064	1	44.1	0	70	17	15	29	47	1.16	- 0.31	0	0	8	5	17	ne.	G. E. Luce.	
Wyoming.																				
Afton.	Uinta.	6,200	8	48.4	- 3.9	86	2	19	23	54	1.28	+ 0.28	0.36	2.0	8	19	5	6	sw.	A. V. Call.
Alta.	do.	7,000	2	43.0	0	70	2	13	21	45	1.48	- 0.44	0.44	3.0	7	8	9	13	sw.	Mrs. Lucy Brown.
Bechlet River.	Yellowstone Park.	5,900	12	44.2	- 6.8	72	2	16	21	46	1.14	+ 0.24	0.26	3.7	10	18	6	6	w.	U. S. Army.
Bedford.	do.	42.6	0	42.6	0	70	3	19	21	40	1.52	- 0.37	0.37	3.3	11	5	5	20	sw.	C. G. Heiner.
Moran.	do.	42.6	0	42.6	0	70	3	19	21	40	1.52	- 0.37	0.37	3.3	11	5	5	20	sw.	U. S. Reclamation Service.
Snake River.	Yellowstone Park.	7,000	6	43.6	0	68	2	18	2	40	1.32	- 0.47	0.47	0.4	10	13	11	6	sw.	U. S. Army.
Nevada.																				
San Jacinto.	Elko.	7	7	50.0	0	77	30	26	15	40	0.66	- 0.30	0	0	7	18	5	7	sw.	F. W. Merchant.
Utah.																				
Standrod.	Boxelder.	7	7	50.0	0	77	30	26	15	40	0.66	- 0.30	0	0	7	18	5	7	sw.	T. B. Jones.
Idaho.																				
Albion.	Cassia.	4,650	10	51.4	- 6.2	87	21	24	15	56	0.82	+ 0.15	0.21	T.	4	22	4	4	w.	C. E. Bocock.
Almo.	do.	3	3	51.4	- 6.2	87	21	24	15	56	0.82	+ 0.15	0.21	T.	4	22	4	4	w.	Wm. D. Cahoon.
American Falls.	Oneida.	4,341	21	51.4	- 6.2	87	21	24	15	56	0.82	+ 0.15	0.21	T.	4	22	4	4	w.	Geo. Stoll.
Arrowrock.	Boise.	3,100	16	48.9	- 7.9	79	2	21	21	47	0.27	- 0.25	0.11	0	4	26	2	2	sw.	U. S. Reclamation Service.
Blackfoot.	Bingham.	4,503	16	48.9	- 7.9	79	2	21	21	47	0.27	- 0.25	0.11	0	4	26	2	2	sw.	E. A. Dowd.
Blackfoot Dam.	Bannock.	6,200	3	46.7	0	75	2	14	21	47	1.06	- 0.40	0	0	9	12	3	15	s.	S. C. Waddell.
Bogus Creek.	Boise.	4,200	4	57.7	- 4.2	85	30	37	24	38	0.77	+ 0.36	0.51	0	3	17	6	7	nw.	F. P. Ingraham.
Boise.	Ada.	2,730	27	57.7	- 4.2	85	30	37	24	38	0.77	+ 0.36	0.51	0	3	17	6	7	nw.	U. S. Weather Bureau.
Bonniers Ferry.	Bonner.	1,850	5	55.4	0	82	30	29	21	41	0.30	- 0.20	0	0	2	18	11	1	w.	W. H. Heideman.
Boulder Mine.	Boise.	4,800	3	55.4	0	85	30	26	25	50	0.50	- 0.28	0	0	3	17	10	3	w.	Patrick Moriarty.
Buhl.	Twin Falls.	3,800	5	55.4	0	82	30	29	21	41	0.30	- 0.20	0	0	2	18	11	1	w.	S. C. Orr.
Caldwell.	Canyon.	2,372	8	55.6	0	87	30	25	25	50	0.53	- 0.36	0	0	2	17	10	3	w.	Wm. J. Boone.
Caldwell Station.	do.	4,815	4	55.6	0	87	30	25	25	50	0.53	- 0.36	0	0	2	17	10	3	w.	C. B. Hampson.
Camas.	Fremont.	2,651	16	54.0	- 5.8	83	18	24	24	52	1.39	+ 0.76	0.89	0	5	16	7	7	nw.	Mrs. Ednah Faulkner.
Cambridge.	Washington.	5,220	2	51.2	0	72	12	31	15	35	1.99	- 0.83	0	0	7	15	5	10	nw.	Chas. H. Shepherd.
Cedar Creek Dam.	Twin Falls.	5,424	16	48.2	- 3.1	89	5	12	21	60	0.52	- 0.14	0.20	0	4	15	5	10	nw.	Robert Hoffman.
Chesterfield.	Bannock.	2,084	16	51.2	0	72	12	31	15	35	1.99	- 0.83	0	0	7	15	5	10	nw.	Chas. S. West.
Clarks Fork.	Bonner.	6,000	12	56.0	0	81	1	24	24	45	1.48	- 1.10	0	0	2	21	3	6	sw.	Wm. Potter.
Clyde.	Custer.	3,059	4	56.0	0	81	1	24	24	45	1.48	- 1.10	0	0	2	21	3	6	sw.	R. L. Sutcliffe.
Council.	Adams.	3,059	4	55.0	0	81	11	30	10	48	1.19	- 0.64	0	0	6	16	6	8	sw.	F. L. Featherston.
Culdesac.	Nex Perce.	1,520	4	51.6	0	79	10	27	21	48	1.71	- 0.95	0	0	5	18	5	7	sw.	Mrs. B. B. Caldwell.
Deary.	Latah.	2,854	10	56.0	0	94	11	30	29	50	1.43	- 0.57	0	0	7	15	7	8	sw.	W. J. Davis.
Dent.	Clearwater.	1,350	6	57.8	0	71	3	15	21	41	0.97	- 0.95	T.	2	7	2	21	sw.	Emil Schuessler.	
Driggs.	Fremont.	6,097	5	57.8	0	88	13	32	24	44	0.74	- 0.35	0	0	4	17	7	6	sw.	W. H. Durrant.
Emmett.	Canyon.	2,350	5	57.8	0	88	13	32	24	44	0.74	- 0.35	0	0	4	17	7	6	sw.	U. S. Forest Service.
Forney.	Lemhi.	6,000	12	56.0	0	81	1	24	24	45	1.48	- 1.10	0	0	2	21	3	6	sw.	M. B. Merritt.
Garden Valley.	Boise.	3,600	4	60.4	- 5.2	90	19	33	24	51	0.55	- 0.21	0.49	0	4	14	13	3	sw.	Mrs. Gertrude M. Ross.
Garnet.	Elmore.	2,575	13	58.6	0	89	30	23	26	54	0.10	- 0.10	0	0	1	19	7	4	w.	A. A. Kenison.
Glenns Ferry.	do.	2,569	4	53.9	0	84	30	22	25	49	0.18	- 0.13	0	0	2	16	11	3	w.	I. E. Perkins.
Gooding.	Lincoln.	3,572	3	48.3	0	79	11	22	21	48	2.11	- 0.60	0	0	11	12	3	15	sw.	John Krall, Jr.
Grand Forks.	Shoshone.	3,000	3	56.7	0	86	18	21	25	60	0.50	- 0.35	0	0	4	15	5	10	nw.	F. W. Beier.
Grandview.	Owyhee.	5,200	3	61.4	0	90	18	32	25	50	0.37	- 0.33	0							

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
Idaho—Continued.																				
Milner	Twin Falls	4,110	8	54.8	—	79	1†	29	25	41	0.41	—	0.18	0	4	11	13	6	w. se.	J. K. Young.
Moscow	Latah	2,748	20	53.7	— 3.5	77	14	32	24†	37	1.76	+ 0.51	0.88	0	4	15	8	7	se.	University of Idaho.
Mountainhome	Elmore	3,150	7	55.4	—	80	18	22	25	55	0.88	—	0.53	0	3	20	8	2	—	Mrs. Ellen Manion.
Murtaugh	Twin Falls	6	6	51.1d	—	81c	30	23*	21	48*	0.20	—	0.20	0	1	—	—	—	w.	J. E. Steinnour.
New Meadows	Adams	3,950	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	E. G. Dunn.
Nespeere	Lewis	3,082	3	52.0	—	85*	5	27	29	45	1.52	—	0.68	0	4	19	2	9	—	P. Mitchell.
Oakley	Cassia	4,700	19	53.6	— 5.6	83	30	28	15	52	0.55	— 0.20	0.55	0	1	14	16	0	—	John Adams.
O'Hara Bar	Idaho	1,557	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	J. D. Agnew.
Orofino	Clearwater	1,027	8	55.8	—	83	11	32	21†	48	1.18	—	0.54	0	9	18	7	5	—	Geo. Altender.
Payette	Canyon	2,159	22	55.9	— 5.6	88	10	26	25	51	0.27	— 0.29	0.15	0	2	20	3	7	s.	E. F. Allen.
Pebble	Bannock	5,277	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Alexander McQueen.
Pierson	Custer	7,000	2	40.3	—	71	1†	10	8	58	0.49	—	0.23	0	3	22	0	8	s.	D. P. Clarke.
Pleasant Valley	Ada	3,000	5	55.4	—	87	30	29	23†	47	0.55	—	0.32	0	4	26	2	2	se.	C. E. Friedrich.
Pocatello	Bannock	4,483	13	52.4	— 8.3	79	30	26	21	40	0.92	+ 0.04	0.40	0	7	12	11	7	se.	U. S. Weather Bureau.
Pocatello Nursery	do.	5,396	5	49.2	—	78	2	21	20	44	1.60	—	0.48	0	9	11	13	6	sw.	Mrs. Fannie E. Say.
Poplar	Bonneville	5,500	2	8.6	—	74	6	17	21	41	0.42	—	0.17	0	5	16	11	3	sw.	C. M. Lawrence.
Porthill	Bonner	1,665	23	50.6	— 3.1	76	12	27	29	40	0.44	— 1.56	0.20	0	6	17	1	12	—	H. A. French.
Priest River Ex. Station No. 1	do.	2,500	—	48.2	—	68	30	26	17	37	1.68	—	0.58	0	9	16	8	6	s.	D. R. Brewster.
Priest River Ex. Station No. 2	do.	2,500	—	51.2	—	80	11	26	29	45	1.47	—	0.48	0	9	16	8	6	e.	Do.
Priest River Ex. Station No. 3	do.	—	—	48.5	—	77	11	19	29	51	1.51	—	0.51	0	9	16	8	6	e.	Do.
Pyle Creek	Boise	3,100	3	—	—	—	—	—	—	—	0.73	—	0.30	0	5	23	3	4	s.	P. V. Smith.
Richfield	Lincoln	4,306	3	52.8	—	81	30	20	25	47	0.28	—	0.10	0	5	20	9	1	se.	Idaho Irrigation Co.
Roseberry	Boise	4,872	1	45.9	—	77	30	17	21	54	1.41	—	0.60	0	6	19	6	5	e.	J. L. Bumgarner.
Roseworth	Twin Falls	4,650	—	—	—	—	—	—	—	—	0.22	—	0.19	0	2	10	13	7	nw.	D. B. Hartwell.
Rupert	Lincoln	4,204	6	52.6	—	81	30	25	25	45	0.77	—	0.41	0	5	19	3	8	sw.	Will Parry.
St. Anthony	Fremont	4,968	—	43.8	—	68	25	15	20	39	1.77	—	0.62	0	4	19	11	0	—	Heber C. Sharp.
St. Maries	Kootenai	2,263	15	52.4c	— 4.4	76c	30	30c	21†	40*	0.55	—	—	0	3	—	—	—	nw.	J. S. Turnbull.
Salmon	Lemhi	4,040	7	48.2	—	74	2	21	24	48	1.04	—	0.75	0	5	17	11	2	nw.	B. C. d'Easum.
Sandpoint	Bonner	2,086	2	50.2	—	76	11†	25	26†	46	1.22	—	0.52	0	7	18	5	7	n.	J. H. Edgerton.
Sheep Hill	Boise	5,000	3	—	—	—	—	—	—	—	0.72	—	0.32	0	5	—	—	—	—	C. M. Gardner.
Shoshone	Lincoln	3,968	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Zell Truman.
Silver City	Owyhee	6,280	5	—	—	—	—	—	—	—	1.45	—	0.72	T.	5	17	8	5	sw.	Russel Stoddard.
Smith Prairie	Elmore	5,200	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Wm. W. Newell.
Soldier Creek	Biaine	5,755	2	—	—	—	—	—	—	—	0.95	—	0.31	T.	6	—	—	—	nw.	J. E. Minear.
Spirit Lake	Kootenai	2,560	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	M. C. Krause.
Springfield	Bingham	4,420	4	52.6	—	82	30	20	21†	50	0.54	—	0.24	0	3	14	12	4	sw.	Mrs. W. A. Edwards.
Sugar	Fremont	4,892	5	47.4	—	73	30	19	21	45	1.01	—	0.42	0	4	8	9	13	sw.	Utah-Idaho Sugar Co.
Sunnyside	Elmore	3,500	3	58.8	—	85	30	31	23	50	0.47	—	0.30	0	3	—	—	—	nw.	Col. M. W. Wood.
Tripod Mountain	Boise	4,300	3	—	—	—	—	—	—	—	1.37	—	0.78	0	3	15	6	9	—	Mrs. Verna Paddock.
Twin Falls	Twin Falls	3,825	7	54.2	—	86	30	26	21	53	0.30	—	0.15	0	4	12	18	0	sw.	J. A. Waters.
Vernon	Fremont	5,050	14	48.2	— 5.9	81	16	20	21	55	1.43	+ 0.50	0.52	0	6	10	15	5	sw.	A. M. Slatery.
Wallace	Shoshone	2,728	5	50.6	—	78	30	30	21	40	2.46	—	0.56	0	10	—	—	—	se.	U. S. Weather Bureau.
Weiser	Washington	2,114	—	57.6	—	88	13	26	25	54	3.37	—	0.31	0	2	14	10	6	se.	J. W. Laphis.
Wendell	Lincoln	3,400	4	55.6	—	87	30	27	24	46	0.31	—	0.18	0	2	24	5	1	w.	Chas. L. Dingier.
Washington.																				
Aberdeen	Chehalis	162	21	58.0	+ 0.4	85	11†	37	24	41	4.16	— 0.45	1.92	0	7	17	11	2	w.	Carl S. Weatherwax.
Anacortes	Skagit	60	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anatone	Asotin	—	—	50.5	—	80	30	27	25†	45	0.84	—	0.56	0	4	16	10	4	sw.	W. A. Hamilton.
Baker	Skagit	200	6	58.6	—	83	13†	39	27	41	1.36	—	0.55	0	6	16	5	9	—	Robt. M. White.
Bellingham	Whatcom	60	17	57.8	+ 1.6	83	15	37	23	40	0.96	— 1.69	0.63	0	4	24	0	6	—	Sanford B. Mayhew.
Bellingham (near)	do.	107	—	54.0	—	80	14	32	15	46	1.15	—	0.80	0	3	20	5	5	—	U. S. Bureau Plant Industry.
Blaine	do.	57	15	55.2	+ 1.3	74	28	38	3†	31	0.96	— 2.57	0.59	0	6	10	13	7	sw.	J. M. Scott.
Blewett	Chelan	2,200	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bremerton	Kitsap	30	—	—	—	—	—	—	—	—	1.17	—	0.64	0	4	—	—	—	—	U. S. Navy Yard.
Brewster	Okanogan	1,620	2	58.4	—	84	12	38	24	33	0.42	—	0.18	0	4	19	7	4	sw.	Mrs. H. T. Bertram.
Bumping Lake	Yakima	3,400	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cedar River	King	535	5	—	—	—	—	—	—	—	1.56	—	0.54	0	6	16	1	13	—	Geo. Landsburg.
Centralia	Lewis	212	19	57.2	+ 1.2	82	12†	34	22†	46	1.87	— 0.69	0.63	0	6	14	9	7	n.	I. S. Turner.
Cheney	Spokane	2,351	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cle Elum	Kittitas	1,930	13	52.8	— 2.7	87	13	23	24	48	0.58	— 0.38	0.20	0	4	23	2	5	se.	J. A. Balmer.
Clearbrook	Whatcom	140	9	55.8	—	88	28	32	4	45	1.28	—	0.87	0	6	14	11	5	ne.	Geo. Gibbs.
Colfax	Whitman	2,300	23	54.6	— 1.6	81	13	26	20	52	0.88	— 0.24	0.53	0	2	19	5	6	sw.	I. B. Doolittle.
Colville	Stevens	1,635	12	53.6	— 2.9	85	12	25	29	49	0.66	— 0.13	0.56	0	3	17	7	6	sw.	W. L. Sax.
Colville Forest Station	do.	—	—	51.2	—	81	15	22	29	51	—	—	—	—	—	14	7	9	sw.	U. S. Forest Service.
Conconully	Okanogan	2,300	12	55.1	— 1.1	82	12	30	24	42	0.57	— 0.42	0.29	0	2	18	5	7	n.	Wm. Baines.
Cowiche	Yakima	1,874	12	59.6	—	86	12	40	4†	30	0.09	—	0.09	0	1	21	5	4	nw.	U. S. Reclamation Service.
Crecent	Lincoln	2,250	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Darrington	Snohomish	—	—	56.8	—	87	15	32	29	48	0.69	—	0.20	0	5	20	5	5	—	Prof. N. C. Rhoads.
Davenport	Lincoln	2,450	3	53.9†	—	81†	12	30†	24	39†	0.24	—	0.24	0	1	19*	3*	3*	—	J. L. Thayer.
Dayton	Columbia	1,700	26	58.0	— 1.9	80	12†	36	20	39	0.24	— 0.84	0.18	0	3	19	8	3	sw.	W. W. Hendron.
Deer Park	Spokane	2,050	3	50.6	—	79	11	25	21	45	1.2†	—	0.45	0	5	24	3	3	se.	Robt. Allison, Jr.
Detroit	Mason	30	4	59.0	—	84	13†	39	24	40	1.89	—	0.54	0	7	21	3	6	ne.	Walter O. Eckert.
Dixie	Walla Walla	5,000	3	—	—	—	—	—	—	—	1.29	—	1.00	0	4	19	1	10	nw.	T. Z. Andrews.
Douglas Lake	Skagit	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dryden	Chelan	960	2	—	—	—	—	—	—	—	0.34	—	0.22	0	2	23	6	1	nw.	Wenatchee Gas & Elec. Co.
Duckabush	Jefferson	380	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ellensburg	Kittitas	1,571	24	55.0	— 1.4	87	12	30	24	45	0.24	— 0.24	0.14	0	2	19	4	7	nw.	R. L. Barnes.
Ephrata	Grant	1,265	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forks	Challam	480	3	62.1	—	83	13	45	24	28	3.12	—	1.00	0	5	—	—	—	nw.	R. H. Palmer.
Fort Simcoe	Yakima	1,427	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gerome	Stevens	2,900	3	55.8	—															

TABLE 1.—Climatological data for September, 1912. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.		Number of cloudy days.	
Washington—Contd.																				
Kettle Falls.	Stevens.	1,265	3	56.4		84	11†	30	24†	41	1.07		0.83	0	4	16	10	4	Harry H. Cole.	
Kiona.	Benton.	430	7										0.52	0	6	15	13	2	J. A. Uish.	
Kosmos.	Lewis.	775	6	57.6		85	21	33	25	45	1.65		0.23	0.93	0	7	19	7	4	Joseph Brothers.
La Center.	Clarke.	250	15	56.0	- 2.8	89*	14	32	26	50	2.48			0.31	0	4	21	5	4	M. E. Schreck.
La Crosse.	Whitman.	1,400	3	56.1		82	12†	27	24	47	0.68			0.53	0	4	13	8	9	U. S. Reclamation Service.
Lake Clealum.	Kittitas.	2,171	3								1.13			0.22	0	5	15	10	5	Do.
Lake Kachess.	do.	2,335	4	53.2		84	13	29	24	42	0.51			0.25	0	6	16	5	9	Do.
Lake Keechelus.	do.	2,479	4										0.16	0	3	13	14	3	W. H. Van Meter.	
Lakeside.	Chelan.	1,116	21	60.6	- 1.3	88	12	40	24	36	0.24	- 0.26		0.23	0	5	16	11	3	Mrs. Minnie E. Strout.
Laurel.	Klickitat.	1,900	3										0.68	0	4	12	5	13	Mrs. J. S. Myers.	
Laurier.	Ferry.	1,644	2	53.6		82	13	27	29†	45	0.97			1.12	0	10	14	11	5	U. S. Engineer Corps.
Lone Tree.	Chehalis.	14	3	59.2		75	14†	44	10	30	2.98			1.10	0	2				National Park ranger.
Longmires Springs.	Pierce.	2,800	3										0.03	0	1	14	14	2	P. H. Leese.	
Lost Creek.	Okanogan.	3,125	3										0.01	0	1	17	7	6	n.	Lucien F. McConihe.
McConihe.	Grant.	1,072	3										0.20	0	4	14	16	0	sw.	Mrs. Mary McCumber.
McCumbers Ranch.	Yakima.	2,182	3										0.15	0	2	29	0	1	sw.	H. M. Flemming.
Moses Lake.	Grant.			59.0		91	13	32	23	45				0	0	22	4	4	e.	G. H. Mottinger.
Mottinger.	Benton.	307	12	63.5	- 3.0	89	13	43	25†	37	T.	- 0.56	T.							
Mount Pleasant.	Challam.	500	20	58.7	- 1.2	92	12†	31	21	51	0.13	- 0.29	0.07	0	2	20	6	4	nw.	H. B. Scudder.
Moxee.	Yakima.	1,000	20	58.7	- 1.2	92	12†	31	21	51	0.13	- 0.29	0.07	0	2	20	6	4	nw.	Chas. M. Talmadge.
Newport.	Stevens.	2,400	2	50.2		80	11	25	29	44	1.00		0.40	0	6	15	8	7	e.	U. S. Weather Bureau.
North Head.	Pacific.	211	10	58.4	+ 2.2	81	10	48	3	23	2.10	+ 0.25	0.98	0	10	11	8	11	nw.	W. F. Case.
Northport.	Stevens.	1,350	13	55.0		82	13	30	28	43	1.65	+ 0.05	0.58	0	5	18	10	2	nw.	Albert Bender.
North Yakima.	Yakima.	1,070	3	59.4		86	12†	36	25	39	1.07		0.10	0	2	21	6	3	nw.	Ruth J. Shepard.
Nutland.	Klickitat.	3	3	64.0		90	1	39	26	41	0.00		0.00	0	0					H. W. Riecke.
Odessa.	Lincoln.	1,540	9	56.6		85	12	29	24	42	0.23		0.20	0	2	15	14	1	sw.	Cecil S. Willis.
Oiga.	San Juan.	50	22	55.8	+ 0.3	74	14	40	3	22	1.14	- 1.09	0.74	0	5	16	7	7	nw.	M. O. Connor.
Olympia.	Thurston.	200	34	57.8	+ 0.9	83	15	35	24	45	2.08	- 0.71	0.96	0	7	18	4	8	ne.	Saint John Umbrite.
Omak.	Okanogan.	850	3	58.0		89	12	27	24	47	0.19		0.19	0	1	23	1	6	n.	M. C. Jackman.
Oroville.	do.	922	3	59.0		85	11	21	24	44	0.63		0.30	0	3	19	2	9	n.	Samuel Gruell, sr.
Peola.	Garfield.	5,000	3										0.35	0	5	22	7	1	nw.	Peter McClung.
Pomeroy.	do.	1,500	20	57.5	- 4.3	81	11†	33	20	42	0.46	- 0.59	0.40	0	3	15	8	7	w.	U. S. Weather Bureau.
Port Crescent.	Challam.	259	17	52.4	- 0.1	78	13	34	24	32	1.49	- 0.81	0.75	0	7	9	13	8	s.	F. Plummer.
Port Townsend.	Jefferson.	80	22	57.4	+ 0.4	80	14	42	24	29	0.56	- 0.64	0.29	0	6	18	2	10	nw.	E. L. Capps.
Prosser.	Benton.	650	20	55.2	- 3.5	78	13	36	25	33	1.00	- 0.34	0.56	0	5	23	4	3	sw.	State Agricultural College.
Pullman.	Whitman.	2,550	20	55.2	- 3.5	78	13	36	25	33	1.00	- 0.34	0.56	0	5	23	4	3	sw.	C. A. Bullard.
Queets River.	Chehalis.	16	5	57.8		83	15	40	24	36	1.17		0.35	0	8	20	3	7	nw.	A. V. Higley.
Quinalt.	do.	300	5	60.0		90	10†	36	24	47	6.48		2.00	0	9	16	7	7	w.	Geo. B. Stocking.
Republic.	Ferry.	2,628	12	51.4	- 2.7	83	12	24	24†	48	0.66		0.39	0	4	16	8	6	nw.	J. W. Nicol.
Rex Creek.	Chelan.	1,135	4	58.0†		80†	12	40†	24	32	0.60		0.46	0	2	10†	8†	10†	se.	
Ritzville.	Adams.	1,825	13										0.20	0	6	16	14	0		R. R. Couger.
Robertsville.	Klickitat.			52.0		84	12	24	24	46	0.49		0.20	0	6	16	14	0		
Rock Lake.	Whitman.	1,910	6										0.46	0	5	16	7	7	sw.	Hans Mumm.
Rosalia.	do.	2,425	20	54.4	- 1.8	79	26	31	24	44	0.99	- 0.17	0.60	0	5	16	7	7	sw.	Mrs. Adella Russell.
Russells Ranch.	Yakima.	2,870	3										0.46	0	8	18	6	12	n.	U. S. Weather Bureau.
Seattle.	King.	123	20	59.2	+ 1.3	80	15	42	24	25	0.73	- 1.20	0.25	0	8	12	6	12	n.	Mrs. H. L. Devin.
Sedro Woolley.	Skagit.	38	15	56.6	- 0.9	78	14†	35	27	38	1.40	- 1.89	0.85	0	8	19	6	5	n.	C. E. Comstock.
Sixprong.	Klickitat.	1,240	5	60.7		88	13	40	24†	36	0.14		0.11	0	2	22	2	6	ne.	
Skagit Power Dam.	Whatcom.	510	2										0.30	0	5	21	5	4	w.	James Bylling.
Snohomish.	Snohomish.	100	18	58.2	+ 1.0	86	15	34	10	45	1.30	- 1.88	0.30	0	5	21	5	4	w.	O. N. Wiswell.
Snoqualmie Falls.	King.	667	12	57.4		81	11	35	24	40	1.53	- 1.53	0.35	0	7	17	4	9		
Snoqualmie Pass.	do.	3,000	3										0.24	0	1	18	9	3	ne.	G. M. Snyder.
Snyders Ranch.	Okanogan.	2,200	3	51.4		87	12	22	24†	55	0.24		0.24	0	1	18	9	3	ne.	Mrs. Winifred E. Bucking-
South Bend.	Pacific.	17	3	58.8	- 0.5	85	13	37	24	36	2.84	- 0.45	0.82	0	11	14	3	13	w.	ham.
Spokane.	Spokane.	1,943	31	56.0	- 2.8	80	12	35	21	38	0.84	- 0.17	0.46	0	6	14	6	10	n	U. S. Weather Bureau.
State University.	King.	170	3	58.8		78	15	46	3†	23	1.48		0.79	0	6	17	9	4	s.	University of Washington.
Stokes Ranch.	Okanogan.	2,670	3										0.25	0	3	19	8	3	sw.	Chas. W. Gunn.
Sumner.	Pierce.	77	4	56.4		84	15	31	25	49	1.67		0.54	0	8	16	5	9	n.	H. E. Thompson.
Sunnyside.	Yakima.	740	17	58.4	- 2.3	88	12	34	21†	48	1.00	- 0.36	0.09	0	2	17	11	2	ne.	U. S. Reclamation Service.
Tacoma.	Pierce.	213	26	58.1	+ 0.5	78	15	42	24	30	1.38	- 1.09	0.42	0	6	11	11	8	n.	U. S. Weather Bureau.
Tatoosh Island.	Challam.	85	27	56.1	+ 2.2	76	14	46	24	42	3.34	- 2.80	1.16	0	7	12	10	8	ne.	Do.
Tieton.	Yakima.	2,000	3	53.0		85	12	30	24	42	0.64		0.45	0	6	18	7	5	w.	U. S. Reclamation Service.
Touchet.	Walla Walla.	556	5	59.4		87	12	31	20†	53	0.10		0.08	0	2	24	4	2	sw.	D. W. Dorrance.
Touchet Ridge.	Columbia.	2,500	3										0.93	0	2	16	12	2	sw.	R. H. King.
Trinidad.	Douglas.	900	8	63.0		90	12	43	5	34	1.06		0.16	0	1	26	0	4	ne.	J. C. Wheeler.
Vancouver.	Clarke.	100	37	61.1	+ 0.1	84	13	38	26	40	1.40	- 0.31	0.51	0	8	17	4	9	nw.	A. A. Quarnberg.
Vashon Island.	King.	40	23	56.8	- 0.4	76	15	43	3†	23	1.06	- 1.13	0.26	0	10	16	4	10	n.	Miss Ger

TABLE 1.—Climatological data for September, 1912. District No. 12—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmelted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.			Number of overcast days.
Oregon—Continued.																				
Cazadero	Clackamas	503	3	61.8		87	13	35	26	44	2.11		0.58	0	9	17	1	12	se.	Alf. Drill.
Cliff	Lake	4,300	5	48.0		82	18	14	24	59	0.58		0.24	0	5	16	10	4	nw.	John C. Green.
Condon	Gilliam	2,884	5																	C. H. Williams.
Corvallis	Benton	266	24																	Oregon Agricultural College.
Crescent	Klamath	4,400	18	47.3		83	13	13	25	63	0.60		0.34	0	7	19	4	7	sw.	U. S. Forest Service.
Dayville	Grant	2,200	18	53.4	— 5.9	80	12†	26	25	50	0.20	— 0.56	0.09	0	4	19	9	2	nw.	Dr. J. Campbell-Martin.
Deadwood	Lane	350	2	60.5		84	14	41	5	39	5.88		2.13	0	7	15	9	6	sw.	Jos. Stemmmons.
Doraville	Columbia	600	10	57.8	— 0.5	80	11	38	24	32	1.56	— 0.50	0.63	0	11	17	3	10	ne.	Jos. Hackenberg.
Drain	Douglas	300	10	60.2		88	11	37	26	49	2.42		0.66	0	9	12	8	10	nw.	Ira Wimberly.
Echo	Umatilla	625	8	58.6†		87†	18	34†	20	52†	0.05		0.05	0	1	20†	0†	6†	w.	R. B. Stanfield.
Ella	Morrow	830	8	59.9		85	11†	36	1†	40	0.10	— 0.35	0.10	0	1	28	2	0	ne.	Carl F. Troedson.
Eugene	Lane	449	22	60.8	+ 0.8	81	13	42	23	29	1.97	+ 0.35	0.57	0	6	18	5	7	nw.	University of Oregon.
Fairview	Cook	142	16	59.0	+ 0.6	89	9	34	30	34	5.71	+ 3.61	1.50	0	6	23	0	7	nw.	Wm. Bettys.
Forest Grove	Washington	220	23																	Pacific University.
Gardiner	Douglas	72	23																	Hon. J. S. Gray.
Glendale	do.	1,441	8	60.0		93	13	35	8	52	0.52		0.19	0	6	17	13	0	nw.	B. J. Simpson.
Glenora	Tillamook	575	21	57.0	— 0.1	84	13	32	25	44	5.03	— 0.07	2.42	0	6	19	0	11	nw.	Mrs. Jennie A. Reeher.
Gold Beach	Curry	40	11	58.8		80	18†	46	4†	20	3.04		0.70	0	7	20	10	0	n.	John W. Riley.
Grants Pass	Josephine	956	24	59.3	— 1.7	93	14†	34	25	52	1.45	— 0.56	0.63	0	7	17	4	9	sw.	John B. Paddock.
Grass Valley	Sherman	2,381	11	52.8		86	12	25	20	48	0.33		0.25	0	2	21	0	9	nw.	Agent O.-W. R. & N. Co.
Gurdane	Umatilla	3,500	3	57.8		80	26	37	3†	36	0.04		0.02	0	3	18	4	8	w.	Miss Belle Ely.
Headworks	Clackamas	719	10		— 4.2															Portland Water Works.
Heppner	Morrow	1,950	22	55.8		89	16	31	21†	56	0.03	— 0.68	0.31	0	3	17	9	4	w.	Frank Gilliam.
Hermiston	Umatilla	451	5	60.8		89	16	31	21†	56	0.03		0.03	0	1	20	6	4	—	C. W. Kellogg.
Hermoso Rio	Crook	2,110	22	53.8†		84†	15†	30†	24†	48†	0.55		0.30	0	3	18	5	7	w.	Carl T. Hubbard.
Hood River	Hood River	300	22	58.9	— 0.7	89	13	36	25	44	0.09	— 1.40	0.09	0	1	20	4	6	w.	H. L. Hasbrouck.
Hood River, No. 2	do.	485	1	59.8		88	13	39	27	40	0.55		0.22	0	4	23	3	4	w.	W. H. Lawrence.
Hood River, No. 3	do.	620	1	58.0		90	13	31	24	48	0.59		0.28	0	6	19	10	1	e.	U. A. Newman.
Hood River, No. 4	do.	850	1	58.0		87	13	34	24†	40	0.60		0.30	0	5	22	5	3	w.	P. L. Smith.
Huntington	Baker	2,165	11			85	13				0.06	— 0.36	0.06	0	1	20	10	0	w.	Agent O.-W. R. & N. Co.
Jacksonville	Jackson	1,640	24	61.6	— 0.6	89	13†	39	24	44	1.29	+ 0.38	0.61	0	7	19	2	9	—	E. Britt.
Joseph	Wallowa	4,400	23	51.0	— 2.4	79	29	26	22	44	1.00	— 0.16	0.62	0	6	15	3	12	s.	F. F. McCully.
Klamath Agency	Klamath	4,169	4	51.4		90	12	26	29†	56	1.30		0.50	0	3	21	3	6	w.	N. D. Ginsbach.
Klamath Falls	do.	4,100	23	54.8	— 3.4	83	18	31	24	39	1.04	+ 0.51	0.71	0	5	17	8	5	nw.	Augusta J. Hayden.
La Grande	Union	2,784	24	54.2	— 5.2	81	18	26	25	46	1.01	— 0.09	0.63	0	5	19	4	7	nw.	W. A. Worstell.
Lakeview	Lake	4,825	29																	Ralph C. Koozer.
McKenzie Bridge	Lane	1,400	11	56.0	— 2.0	91	13	28	25	54	2.98	+ 0.60	0.67	0	10	17	2	11	w.	Geo. Frissell.
McMinnville	Yamhill	182	25			86	11				1.63	— 0.31	0.80	0	7	15	5	10	sw.	M. E. Pettit.
Marshfield	Cook	34	11	58.2		84	10	37	26	43	4.12		1.26	0	8	18	3	9	n.	U. S. Weather Bureau.
Meadow Brook Ranch	Hood River	850	1	58.5		84	13	36	24	38	1.23		0.74	0	5	24	5	1	w.	John W. Palmer.
Medford	Jackson	1,425	2	61.6		90	13†	36	24†	48	1.11		0.70	0	8	18	6	6	nw.	U. S. Weather Bureau.
Merrill	Klamath	4,070	7	53.0		85	18	26	25	54	0.65		0.38	0	3	19	3	8	—	U. S. Reclamation Service.
Metolius	Crook	2,525	2	52.6		82	18	28	23	42	0.34		0.24	0	4	16	5	9	sw.	W. E. Bottman.
Mikkalo	Gilliam	1,400	6																	Frank Little.
Miramonte Farm	Clackamas	195	24	59.6	+ 0.2	83	15	36	24	36	1.41	— 0.75	0.59	0	6	17	4	9	n.	G. Muecke.
Monroe	Benton	350	15																	L. A. Peek.
Mount Angel	Marion	485	26	61.7	+ 0.4	82	15	43	24	29	2.20	+ 0.19	0.95	0	6	17	6	7	e.	Dr. Urban Fischer.
Mt. Hood	Hood River	1,450	1	54.1		84	13	29	24	44	0.56		0.24	0	6	19	8	3	nw.	Isaac Beal.
Musick	Douglas	5,000	3	52.0		78	26	30	24	38	4.40		1.30	3.0	8	21	1	8	sw.	Alex. Lundberg.
Newport	Lincoln	69	25	59.4	+ 3.4	88	10	43	21†	37	4.35	+ 2.64	1.33	0	7	12	6	12	nw.	Wm. Mathews.
Odell	Hood River	1,000	1	59.4		88	13	38	24	34	0.54		0.20	0	5	21	0	9	—	T. A. Decker.
Ortley	Wasco	1,600	1	57.7		84	13	39	24	33	0.45		0.25	0	12	18	10	2	—	L. D. Firebaugh.
Paisley	Lake	4,500	9																	E. C. Woodward.
Parkdale	Hood River	1,650	2	58.1		85	13	33	24	39	0.51		0.35	0	5	21	5	4	n.	S. G. Babson.
Pendleton	Umatilla	1,070	23	58.8	— 2.4	93	15	31	20	54	0.22	— 0.67	0.13	0	4	21	4	5	w.	E. F. Averill.
Pilot Rock	do.	1,817	4	59.3		87	18	37	20	48	0.38		0.12	0	5	21	0	9	nw.	John P. McManus.
Pompeii	Clackamas	3,879	17																	E. Coalman.
Portland	Multnomah	57	42	62.4	+ 1.8	84	11	42	24	30	1.18	— 0.66	0.32	0	7	12	7	11	nw.	U. S. Weather Bureau.
Port Orford	Curry	80	7																	J. D. Loucks.
Prairie City	Grant	3,425	1	53.8		84	29	25	22	54	0.63		0.37	0	6	19	4	7	w.	A. M. F. Kirchheiner.
Prineville	Crook	2,864	16																	Geo. Summers.
Prospect	Jackson	2,800	6	57.6		89	13	29	24	53	2.37		1.13	0	7	15	8	7	s.	E. G. Trumbo.
Ramsey	Wasco	1,350	11	54.6†		81†	12	32†	24	38†	0.34		0.21	0	2	19†	3†	7†	e.	Mrs. Iva B. Collins.
Range	Grant	3,500	4	49.8		79	29	23	25	50	0.50		0.25	0	3	19	7	4	—	Mrs. Emma Arbuckle.
Redmond	Crook			52.3		81	12†	25	24	46	0.32		0.25	0	2	17	8	5	sw.	John Tuck.
Richland	Baker	2,350	11	55.2		86	17	26	25	47	0.43		0.23	0	2	20	4	6	w.	L. G. Morgan.
Riverside	Malheur	3,000	13	51.8	— 7.1	86	18	20	22	57	0.38	— 0.60	0.25	0	3	15	6	9	w.	Mrs. Leah Fairman.
Roseburg	Douglas	510	34	61.1	+ 0.6	88	14	89	25	41	1.99	+ 0.95	0.68	0	9	13	11	6	nw.	U. S. Weather Bureau.
Salem	Marion	120	22	60.0	— 0.8	81	13†													

TABLE 2.—Daily precipitation for September, 1912. District No. 12, Columbia Valley.

Stations.	Watershed.	Day of month.																														Total.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Montana.																																
Anaconda.	Missoula.		.16	*	1.40	.02		T.					.15	.32	.02					*	.07		*	.12	T.	T.		T.				2.26
Butte.	do.	T.	.10	.65	T.			T.		T.			T.	.20						T.				T.	.25	T.	T.					0.95
Columbia Falls.	Flathead.		.09	.15	.07	.09		.55	.09					.09									.12	.25								1.50
Como.	Bitter Root.	.05		.77	.26									.05						.05				.05								1.23
Dayton.	Flathead.		T.	.30		T.		T.																								0.80
East Anaconda   .	Missoula.		.28	1.10	.08			T.					.09	.28	T.					.04	T.		T.	.20	.16	T.		.30				2.03
Fortine.	Kootenai.	.27	.10	.49	.08	.14	T.		.03					.15					.06	.01			T.	.28		.01						1.62
Hamilton.	Bitter Root.		.10	.10	.56	.28								.03								T.	.03									1.10
Hat Creek.	Missoula.		.16	.44	.83	.04		.06					.04	.19	.33					.13	.09		.03	.19	.22							2.75
Haugan.	do.	.15	.03	.10	.01	T.	T.	.20	.10																							1.20
Heron.	Columbia.	.41	.08	.16	.01	.14		.32	.15															.43	.23							1.93
Kalispell.	Flathead.	.02	.02	.12	.06	.01		.15	.01					.06					T.				.07	.16		T.						0.68
Libby.	Kootenai.	.68	.10	.05	.02	T.	T.	.11	.07														T.	.27	T.							1.30
Lost Creek.	Missoula.		.06	.20	1.11	.04							T.	.22	.40					.07			.12									2.22
Missoula.	do.	.02	.14	.03	.33	.28		.08						.06						.06			T.	.42	.16							1.58
Ophir.	do.	.52	.20	.22	1.03	.05								.68	.48						.42	.60		.20	.10							4.50
Ovando.	do.	T.		.05	.60	.15	.20	.09	.05				.05	.08									T.	.20	T.	.05						1.52
Phillipsburg.	do.			.20		1.00		T.	.23															.30	T.							1.73
Plains.	Columbia.	.02	*	*		*		*	*	.52				T.									T.	.50	.05							1.09
Pleasant Valley.	Kootenai.	T.	.10	.08	.07			.12					.03							.02			T.	.05	.27	.02						0.76
Polson.	Flathead.			.13	.20			.60	.10														.10	.44								1.57
St. Ignatius.	do.	.04	.10	.12	.20	.15	.41	T.						.15										.40	.07							1.64
Saltese.	Missoula.					.18		.44																.76								1.38
Stevensville   .	Bitter Root.		.06	.04	.43	.35		.04	T.															.17	.04							1.13
Thompson Falls.	Columbia.	.31	.03	.17	T.	.04		.20	.07	.02													.01	.25	.06							1.16
Wyoming.																																
Afton.	Snake.	.08			.06				.12	.06	.04			.36	.24												.32					1.28
Alta.	do.	.42			.07	.05					.09			.13										.28	.44							1.48
Bechler River.	do.			.02	.01									.02		.10							.01	.05								0.21
Bedford.	do.	.07		.15	.03			.06	.05	.05			T.	.26	.20									.10	.17							1.14
Moran.	do.	.37		.05	.02			.06					.12	.20	.07	.02				.01				.35	.25							1.52
Snake River.	do.	.47		.08	.09		T.		.01	.05	T.	.10	.16	.01	T.									.26	.09							1.32
Nevada.																																
San Jacinto.	Snake.																															
Utah.																																
Standrod.	Boxelder.	.02			.30				.15	.05	.03	.07			.04										T.	T.						0.66
Idaho.																																
Albion.	Snake.	.04	T.	.05	.61			T.					.40																			1.10
Almo.	do.	.09		.08	.14					.19	.11			.21																		0.82
American Falls.	do.		.03	.07	.52			.25																								0.87
Arrowrock.	Boise.	T.		.06						.11	.06	.01	T.	.04																		0.27
Blackfoot   .	Blackfoot.	.05		.03					.07	.15	.01			.40	.10										.12	.13						1.06
Blackfoot Dam.	do.				.03																											1.06
Bogus Creek.	Payette.			.16			.72	.18																								0.77
Boise.	Boise.	T.		.20	.32		.25																T.	T.								0.77
Bonniers Ferry.	Kootenai.																															
Boulder Mine.	Boise.	.07		.20	.76	.04		.39																.11								1.57
Buhl.	Snake.	.20		T.	.10																											0.30
Caldwell.	Boise.	.20		.28			.21	.01																								0.50
Caldwell Ex. Station.	do.				.36		.17																									0.53
Camas.	Lost River reg'n.																															T.
Cambridge.	Weiser.	.05		.18	.25	.02	.89	T.																								1.39
Cedar Creek Dam.	Snake.	.20	.01	.14		.32																										0.67
Chesterfield.	Port Neuf.							T.	.07		T.	.10	.20	.15										T.								0.52
Clarks Fork.	Pend d'Oreille.	.23	T.	.14	.02	.09	.37	.31																	.83							1.99
Clyde.	Lost River reg'n.																															
Council.	Weiser.			T.	.38		1.10	T.																								1.48
Culdesac.	Clearwater.	.16	.16	.14			.64	.08																.01								1.19
Deary.	do.	.09	.23				.95	.24																.20								1.71
Dent.	do.	.20	.10	T.	T.		.57	.16															.12	.03								1.43
Driggs.	Snake.	T.		T.	T.					T.	T.	T.																				0.97
Emmett   .	Payette.	.04		T.	.24	.11	.35															</										

TABLE 2.—Daily precipitation for September, 1912. District No. 12—Continued.

Stations.	Watershed.	Day of month.																														Total.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
<i>Idaho—Continued.</i>																																	
Moscow.	Palouse.	.88		.37	T.			.42	.09																T.							1.76	
Mountainhome.	Snake.	.21		.14	.53																											0.88	
Murtaugh J.	do.				.20																											0.20	
New Meadows.	Salmon.																																
Nespero.	Clearwater.		.45					.68	.08																							1.52	
Oakley.	Snake.				.55																									.31		0.55	
O'Hara Bar.	Clearwater.																																
Orofino.	do.	.14	.17	.10	.03	.01		.54	.13					.01								T.	.05									1.18	
Payette.	Payette.	T.		T.	.12	T.		.15	T.																							0.27	
Pebble.	Port Neuf.																																
Pierson.	Salmon.		.12	.23				.14																								0.49	
Pleasant Valley.	Boise.	.01		.03	.32			.19																								0.55	
Pocatello.	Port Neuf.	.07		.09	.02					.34	.07	T.		.14									.19									0.92	
Pocatello Nursery.	do.	.09		.03	.05					.32	.21	.18		.05	.19										.48							1.60	
Poplar.	Snake.	.02		.07	.02									.14									.17									0.42	
Porthill.	Kootenai.	.08	.08	.06		.01		.20	.01																							0.44	
Priest River Ex. Station.	No. 1 Pend d' Oreille.	.38	.05	.07	T.	.02	T.	.58	.34	.06	T.	T.		T.									.17	.01								1.68	
Priest River Ex. Station.	No. 2 Pend d' Oreille.	.35	.04	.06	T.	.03		.48	.28	.06	T.	T.	T.	T.			T.						.16	.01								1.47	
Priest River Ex. Station.	No. 3 Pend d' Oreille.	.38	.05	.06	T.	.03	T.	.51	.26	.05	T.	T.	T.	T.			T.						.16	.01								1.51	
Pyle Creek.	Payette.	.04		.08	.29			.30															.02										0.73
Richfield.	Wood-Malad.	.10	T.		.05			T.				.09	.01		.03																	0.28	
Roseberry.	Payette.	.08	.01	.20	.60	.02		.50	T.																							1.41	
Roseworth.	Snake.	.19		.03																												0.22	
Rupert.	do.	.16			.41	T.					.15				.04</																		

TABLE 2.—Daily precipitation for September, 1912. District No. 12—Continued.

Stations.	Watershed.	Day of month.																														Total.		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
Washington—Contd.																																		
Lake Clealum.....	Yakima.....	.53	.34	T.	T.		.08	.18	T.	T.																					T.	1.13		
Lake Kachess.....	do.....	.17	.01				.22	.04																							.07	0.51		
Lake Keechelus.....	do.....	.25	.19				.18	.22	.07																						.13	1.04		
Lakeside.....	Columbia.....		.02	T.			.16	.06																							T.	0.24		
Laurel.....	do.....	.03	.19	.12			.14	.23																								T.	0.71	
Laurier.....	Kettle.....	.15	.02	.12	T.		T.	.68	T.																							0.97		
Lone Tree.....	Coast.....	.11	.69	.02		.03	.36	1.12	.03								T.	.01	T.											.35	.26	2.98		
Longmires Springs.....	Puget Sound.....		.50				T.	1.10																									1.60	
Lost Creek.....	Columbia.....	T.	.03	T.	T.	T.	T.	T.																								T.	0.03	
McConihe.....	do.....						T.	T.																									T.	0.03
McCumbers Ranch.....	do.....		.20				.05	.10																								.05	0.40	
Moses Lake.....	do.....		.04				.15																										T.	0.19
Mottinger.....	do.....		T.				T.																										T.	
Mount Pleasant.....	Coast.....																																	
Moxee.....	Yakima.....		T.				.07	.06																								T.	0.13	
Newport.....	Pend Oreille.....	.16	.03	.02				.40	.20															.19								T.	1.00	
North Head.....	Coast.....	.13	.55			.02	.08	.98										.02	.02					.05							.03	.22	2.10	
Northport.....	Columbia.....	.02	.54	T.	.01		.58	.50																								T.	1.65	
North Yakima.....	Yakima.....		T.	T.			.07	.10																								T.	0.17	
Nutland.....	Columbia.....																																	0.00
Odesa.....	do.....		T.				.03	.20															T.	T.									0.23	
Olga.....	Puget Sound.....		.74				.17	.11																							.08	.04	1.14	
Olympia.....	do.....	.05	.34			T.	.42	.96	.01																						.03	.27	2.08	
Omak.....	Okanogan.....		T.				T.	.19																										0.19
Oroville.....	do.....	.20	.13					.30																										0.63
Parker.....	Yakima.....																																	
Peola.....	Snake.....		.25	.11			.01	.35																.03									0.75	
Pomeroy.....	do.....	.02	T.	.04			T.	.40																									0.46	
Port Crescent.....	Coast.....	.33	.46				.12	.11										.03	T.												.02	.42	1.49	
Port Townsend.....	Puget Sound.....		.29				.10	.05	.04	.04																							0.56	
Pullman.....	Palouse.....		.21	.03			.56	.04																								.16	1.00	
Queets River.....	Coast.....	.35	.15				.28	.01	.25									.01													.03	.09	1.17	
Quinalt.....	do.....	.80	1.11	1.00			.59	2.00	.15										.14												.10	.59	6.48	
Republic.....	Kettle.....	T.	.04	.13	T.		.10	.39																								T.		0.66
Rex Creek.....	Columbia.....		.14				.46																										T.	0.60
Ritzville.....	do.....																																	
Robertsville.....	do.....	.08	.20			T.	.07	.10	.01																							.03	0.49	
Rock Lake.....	Palouse.....																																	
Rosalia.....	do.....		.01		.03			.60																.07								.28	0.99	
Russells Ranch.....	Yakima.....	.20	.11	.04	.46	.40	.10	.02																		T.						T.	.01	1.34
Seattle.....	Puget Sound.....	.02	.23				.15	.21	T.																							T.	.12	0.73
Sedro Woolley.....	do.....	.04	.85	.02			.16	.05	.09																							.03	.16	1.40
Sixprong.....	Columbia.....						.11	.03																										0.14
Skagit Power Dam.....	Puget Sound.....																																	
Snohomish.....	do.....	.30	.30				.30	.20																								.20	1.30	
Snoqualmie Falls.....	do.....	.30	.28	.03			.11	.35	.26																							.20	1.53	
Snoqualmie Pass.....	do.....																																	
Snyders Ranch.....	Columbia.....		T.				.24																											0.24
South Bend.....	Coast.....	.08	.82	.22	.02	.05	.18	.52	.29										.09												.12	.45	2.84	
Spokane.....	Spokane.....		T.	.01	T.		.04	.23	.01															.09								.46	0.84	
State University.....	Puget Sound.....	.79	.25				.17	.14	.10																							.03	1.48	
Stokes Ranch.....	Columbia.....		.25				.20	.09																										0.54
Summer.....	Puget Sound.....	.04	.25				.54	.30	.30	.02																						.09	.13	1.67
Sunnyside.....	Yakima.....		.01				T.	.09																										0.10
Tacoma.....	Puget Sound.....	.14	.27			T.	.22	.40																								.01	.34	1.38
Tatoosh Island.....	Coast.....	1.12	.17		T.		.46	.34										.08													T.	.24	.93	3.34
Tieton.....	Yakima.....	.04	.02	.06	.02	T.	.45	.05																									T.	0.64
Touchet.....	Columbia.....				.02		T.	.08																									T.	0.10
Touchet Ridge.....	do.....							.93																									.85	1.78
Trinidad.....	do.....						T.	.16																										0.16
Vancouver.....	do.....	.03	.51	.08		.06	.15	.01	.25		</																							

TABLE 2.—Daily precipitation for September, 1912. District No. 12—Continued.

Stations.	Watershed.	Day of month.																														Total			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Oregon—Continued.																																			
Butte Falls.	Rogue.		.29	.01		.29	1.33	.20	.07																						10	2.31			
California Gulch.	Umatilla.		.15			.41																										30	0.86		
Canyon City.	John Day.																																24	3.00	
Cascade Locks.	Columbia.	1.07	.51	.24	.02	.04	.77	.03	.08																								15	3.29	
Cascadia.	Willamette.	.17	1.15	.22		.17	.28	.60	.55																								33	2.11	
Cazadero.	do.	.04	.58	.13	T.	.07	.12	.38	.45															.01										0.49	
Christmas Lake.	SE. drainage.		.16	T.		.02	.17	.14	T.																									0.58	
Cliff.	do.		.04	.03		.22	.24	.05																										0.68	
Columbia Mine.	Snake.		.04	.02	*.05			.48																.09											
Condon.	John Day.																																		
Coquille River	Coast.	1.45	1.60			.80			.27																								25	4.3	
Lighthouse.																																			
Cornucopia.	Snake.		T.		.05	.22	.02	.42	.08														.03		T.									0.82	
Corvallis.	Willamette.																																		
Cracker Creek.	Snake.	T.	T.	T.	T.		T.	.05																.01										0.06	
Crescent.	Deschutes.	.01	.11	.02	T.	.01	.34	T.	.10	.01																								0.60	
Dayville.	John Day.		.01		T.	.05	.09	.05	T.																									T.	
Deadwood.	Coast.	2.13	.55		.75	1.13	.27		.67																									38	
Diamond.	SE. drainage.			.05			T.	.28																											
Doraville.	Columbia.	.03	.63	.01		.08	.35	.27	.03															.03										10	
Drain.	Umpqua.	.12	.66	.53		.38	.06	.43	.10																									12	
Dufur.	Columbia.																																		
Duncan.	Umatilla.			.20	.30		.40																											55	
Echo.	do.							.05																											
Ella.	Columbia.						T.	.10																											
Embody.	SE. drainage.		.22			.19	.31	.05	.10																									T.	
Engene.	Willamette.	.50	.57	T.		.41	.05	.35																										0.9	
Fairview.	Coast.	.50	1.30	1.12		1.50	.69																											60	
Falls City.	Willamette.																																		
Flir Glen.	Coast.	.11	.69	.34	T.	.74	.35	.16																										10	
Florence.	do.		1.90	.30		.54	.28	.26	.22																									21	
Forest Grove.	Willamette.																																		
Fort Rock.	SE. drainage.			.12	T.	.09	.01	.05	T.																									T.	
Galice.	Rogue.		.55	.39		1.14	.29	.10	.03																									T.	
Gardiner.	Umpqua.																																		
Gibbon.	Umatilla.																																		
Glencoe.	Columbia.																																		
Glendale.	Umpqua.		.19	.11	.02	.07	.09	T.																										0.00	
Glenora.	Coast.		.18	.40		.09	10	2.42	.41																									0.52	
Gold Beach.	Rogue.		.60	.80	.04	.70	.20	.30																.01										1.42	
Golden Falls.	Coast.		1.20	1.05		1.11	.06	.47	.39																									4.0	
Granderonde.	do.																																	29	
Grants Pass.	Rogue.		.18	.17		.63	.22	.19	.31																										
Grass Valley.	John Day.		.08			.25																												0.05	
Greenhorn.	Snake.	.05	.06	.03	T.		.06	.21	.01																									0.33	
Gumboot.	do.	.09	.06	.06	.15	.03		.07	T.																									0.06	
Gurdane.	Columbia.	.01	T.	.02																														0.01	
Hampton.	Deschutes.		.05		.02	.08	.27	.10	.03																									T.	
Happy Home.	Umpqua.	.02	.82	.70	.04	1.76	.30	12	.24																									0.08	
Harbor.	Columbia.	.01	1.01	1.25		2.15	.90	.30	.25		T.	T.																					0.63		
Hay Creek.	Deschutes.		.17			.03	.40	.05	.10																									0.04	
Hazeldell.	Willamette.		.25		.30	.13	T.	.41	.49																									0.09	
Headworks.	do.																																		
Heppner.	Columbia.			T.		T.	.02	.31																										0.04	
Hermiston.	Umatilla.							.03																											
Hermoso Rio.	Deschutes.		.04			.30	.21																												
Hilgard.	Grande Ronde.	.10						.40																											
Hood River.	Columbia.	.09					T.																											T.	
Hood River No. 2.	do.	.20	.04	T.		T.	.22	.09																										T.	
Hood River No. 3.	do.	.28	.04			.02	.15	.08																										0.02	
Hood River No. 4.	do.	.17	.06	T.		T.	.30	.06	.01																									T.	
Hoover.	Willamette.	1.00	.25	T.	.13	.17	.42	.39																										24	
Howardville.	Grande Ronde.		.14	.09	.03	.59																													
Huntington.	Snake.							.06																											
Ibex Mine.	John Day.	.06	.05		T.	.10	.42	.06	T.																									T.	
Ironside.	Snake.							.21																											0.21
Jacksonville.	Rogue.		.16	.09	.10	.15	.61	.06	.12																									1.29	
Joseph.	Grande Ronde.	.10	.05	.15	.03		.62	.05																										T.	
Klamath Agency.	Klamath.		.40		.50	.40																												1.00	
Klamath Falls.	do.	T.	.07	.03		.19	.71	.04																										1.30	
La Grande.	Grande Ronde.	.21	.10	.04	T.		T.	.63	.03																									T.	
Lakeview.	Pitt.																																		
Lillyglen.	Rogue.		.38	.13	.10	.43	1.53	.08	.13																										
Long Creek.	John Day.</																																		

TABLE 2.—Daily precipitation for September, 1912. District No. 12—Continued.

Stations.	Watershed.	Day of month.																													Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
<i>Oregon—Continued.</i>																																		
Persist.....	Rogue.....	.20	.35	.05	T.	.50	1.28	.20																			.10			T.	2.68			
Pilot Rock.....	Umatilla.....	.12			.04	.02	T.	.10																							T.	0.38		
Pompeli.....	Columbia.....																																	
Portland.....	Willamette.....	T.	.64	.12		.13	.08	.03	.01															T.								.17	1.18	
Port Orford.....	Coast.....																																	
Post.....	Deschutes.....		.10			.08	.11		.15																								0.44	
Power House.....	Columbia.....	.03	.22		T.		.48	.02																								.55	1.30	
Prairie City.....	John Day.....	.15	.02	.02			T.	.37	.01																							.06	0.63	
Prineville.....	Deschutes.....																																	
Prospect.....	Rogue.....		.35	.21	T.	.30	1.13	.19																				.01				.18	2.37	
Rager Creek.....	Deschutes.....		.07			T.	.04	.11																									0.22	
Ramsey.....	Columbia.....		T.				.21	.13																									0.34	
Range.....	John Day.....		.15		T.			.25	.10																								0.50	
Ray Creek.....	Columbia.....		T.			T.	.31	T.																T.								T.	0.31	
Redmond.....	Deschutes.....					.25		.07																									0.32	
Reston.....	Umpqua.....	.03	.65	.37		.75	.80	.13																				.02					2.75	
Richland.....	Snake.....				.20			.23																									0.43	
Riverdale.....	Deschutes.....	.04				.04	.25	T.	.03																								0.36	
Riverside.....	Malheur.....							.25	.05	.08																							0.38	
Rock Creek.....	Willamette.....	1.01	1.13	.50		.20	.33	.29																									3.56	
Roseburg.....	Umpqua.....		.59	.17	.01	.67	.08	.29	.03																				T.	.01		.14	1.99	
Rosland.....	Deschutes.....		.12			.09	.37	.08	.11																								0.82	
Salem.....	Willamette.....		.59	.30		.22	.11	.12	.08																								.07	1.49
Seneca.....	SE. drainage.....		T.			T.	.54	.11																T.									0.65	
Silver Lake.....	do.....				.31	.15																											0.46	
Siskiyou.....	Rogue.....		.52	.06		.60	2.69	.04																									3.91	
Sisters.....	Deschutes.....		.02	.03			.23	.04	.05																								0.37	
Sparta.....	Snake.....		.02	.01	.12	T.	T.	.06	.24		.03	T.	.01											.03								.05	0.57	
Stafford.....	Willamette.....		T.	.75	.12	.02	.13	.11	.08	.10															.05								.21	1.57
Starkey.....	Grande Ronde.....		.30		.25		T.	.40																									.30	1.25
Summit.....	Willamette.....		1.36	.33		.29	.39	.28	.49																								.21	3.35
Summit Prairie.....	Deschutes.....																																	
Susanville.....	John Day.....		.20				.35	T.																									.36	0.91
Tamarack.....	do.....		.20				.20	.14	.03																								T.	0.57
Telocaset.....	Snake.....		T.		T.		.40	.25	T.																								.01	0.94
The Dalles.....	Columbia.....																																	
Tinroof.....	Umatilla.....		.16				.15	.31																										0.62
Toledo.....	Coast.....		1.20		1.20		.30	.20																									.40	3.30
Trail.....	Rogue.....		.16	.08		.54	.82	.05	.06																									1.71
Trask.....	Coast.....																																	
Umatilla.....	Columbia.....						.06																										T.	0.06
Union.....	Grande Ronde.....			.02				.52																	.03	.04								0.61
Vale.....	Malheur.....				.23			.14																										0.37
Valley Falls.....	SE. drainage.....																																	
Van.....	Malheur.....																																	
Vida.....	Willamette.....		.04	.90	.18	.14	.37	.23	.42	.64																							.22	3.14
Vistillas.....	Pitt.....		.22				.15	.30	.03																									0.70
Waldo.....	Rogue.....		.03	.47	.62		1.00	.55	.25	.10																							3.17	
Wallace Orchard.....	Willamette.....		.88	.16	.25	.20	.10	.20	.49																								.10	2.38
Walloupa.....	Grande Ronde.....		T.	.19	.10		.01	.03	.61	.07	.07																							1.08
Wallowa.....	do.....		.04	.06	.07	.05		.34	.05	.02																								0.63
Wamie.....	Deschutes.....							.21	.05																									0.26
Warm Springs.....	do.....																																	
Wasco.....	Columbia.....			.07			.10	T.																										0.17
Welches.....	do.....		.80				.41		.86																								.65	2.72
Westfall.....	Malheur.....																																	
Weston.....	Walla Walla.....		T.	.09	T.			.37	T.																								.40	0.86
Williams.....	Rogue.....		.10	.25		.51	.13	.02	.10																								.01	1.14
Yonna.....	Int. drainage.....		.21	.02		.32	.33																											0.88

\* Precipitation included in that of the next measurement.

† Separate dates of falls not recorded.

‡ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for September, 1912. District No. 12, Columbia Valley.

Date.	Montana.				Afton, Wyo.		Idaho.																						
	Kalispell.		Missoula.				Boise.		Bonners Ferry.		Hot Spring.		Lewiston.		Mackay.		New Meadows.		Pocatello.		Salmon.		Shoshone.		Vernon.		Wallace.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
1....	60	41	63	40	71	42	69	47			71	58	72	50	65	42			67	50	72	44			62	45	59	44	
2....	51	38	59	38	86	42	79	56			82	59	70	52	67	56			68	55	74	40			72	41	63	40	
3....	64	44	56	46	86	46	56	47			70	47	65	51	64	45			75	42	60	38			70	42	59	44	
4....	49	42	52	42	65	35	50	44			55	45	64	47	50	37			53	41	63	34			58	40	56	37	
5....	57	42	60	38	64	31	68	46			70	42	71	48	54	33			63	33	64	33			57	29	62	39	
6....	65	39	69	38	80	26	78	60			79	55	66	53	67	32			76	41	68	34			73	31	69	42	
7....	57	44	56	46	71	36	64	50			70	50	70	52	64	43			68	51	66	33			62	40	50	43	
8....	59	44	62	41	56	39	64	41			70	40	72	51	58	36			62	44	70	36			62	34	60	45	
9....	65	38	67	37	64	35	71	41			72	40	75	46	62	43			56	47	65	30			60	43	69	38	
10....	72	39	72	35	66	40	74	45			74	45	79	47	62	41			63	46	70	33			64	34	74	37	
11....	72	40	76	36	68	33	74	52			75	46	82	48	59	38			60	41	70	32			62	43	76	40	
12....	73	42	76	38	64	36	75	51			78	52	83	49	69	35			69	41	68	27			61	38	74	42	
13....	59	39	62	46	64	32	77	49			78	45	83	51	68	37			70	39	71	28			60	37	67	43	
14....	57	32	58	38	50	25	65	44			77	48	72	46	54	32			54	34	70	26			51	28	60	32	
15....	61	28	64	30	60	25	66	42			68	54	75	44	53	27			59	30	64	27			70	27	64	32	
16....	63	31	70	28	63	23	71	40			73	35	81	42	67	28			67	34	62	25			81	26	70	32	
17....	69	33	76	32	65	26	77	45			77	35	79	44	68	35			71	37	61	24			68	28	70	36	
18....	69	38	76	36	71	25	82	46			82	40	81	47	76	40			76	39	64	25			72	30	68	39	
19....	61	36	62	44	59	34	70	49			78	48	73	47	74	26			67	39	70	26			62	35	64	34	
20....	62	32	63	30	53	33	66	42			70	40	74	39					55	36	71	23			50	23	66	31	
21....	63	28	67	25	61	45	67	38			70	38	77	38					62	26	69	24			56	20	64	30	
22....	50	36	51	36	70	23	73	43			76	33	61	45					68	42	72	25			62	25	62	36	
23....	45	38	45	40	56	19	64	40			65	40	64	43	63	21			61	42	64	26			59	38	44	40	
24....	50	33	52	36	52	32	61	37			68	35	68	40	62	20			51	35	65	21			61	30	53	35	
25....	56	38	60	36	55	22	67	39			70	36	71	38	59	23			63	33	64	23			57	25	59	32	
26....	54	34	58	30	64	25	70	39			76	35	74	39	65	29			66	33	64	24			60	31	59	31	
27....	62	35	67	35	64	35	75	41			78	37	75	40	66	28			70	37	67	29			64	36	66	32	
28....	61	31	63	38	71	50	73	46			75	41	78	39	67	29			69	33	65	31			64	36	62	35	
29....	61	29	68	29	70	27	75	48			78	42	79	41	71	32			73	33	68	33			68	33	69	36	
30....	69	31	88	32	75	26	85	47			87	44	79	45	70	28			79	40	66	31			72	29	78	38	
Mns..	60.2	36.5	63.9	36.5	65.5	32.3	70.2	45.2			74.0	43.5	73.8	45.4	63.9	33.9			65.7	39.1	66.9	29.5			63.3	33.2	63.9	37.2	

Washington.																												
Date.	Aberdeen.		Blaine.		Colville.		Kosmos.		Lakeside.		North Head.		North Yakima.		Odessa.		Port Crescent.		Seattle.		Sixprong.		Spokane.		Tacoma.		Tatoosh Island.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1....	58	50	58	51	64	42	65	48	67	47	59	55	68	41	65	38	56	45	58	52	76	53	61	46	60	52	56	51
2....	62	46	59	50	63	49	61	46	68	52	57	50	68	53	63	43	56	40	60	49	67	47	61	50	59	49	56	49
3....	63	41	60	38	64	46	66	41	66	43	58	48	68	37	64	40	55	37	61	45	67	45	62	46	62	43	58	48
4....	64	38	64	38	65	32	63	38	72	42	58	50	69	41	61	34	57	39	61	45	70	42	62	38	63	44	59	52
5....	63	48	68	42	68	40	60	40	69	44	60	53	68	39	66	42	62	43	64	49	69	45	62	44	64	45	60	53
6....	64	52	62	51	67	43	62	48	62	53	59	54	62	52	69	55	57	47	61	53	65	45	67	51	62	53	57	54
7....	60	50	62	53	60	51	58	48	70	51	59	53	66	45	66	51	58	47	58	53	65	50	62	51	59	52	60	53
8....	64	48	62	53	71	42	63	50	72	50	60	54	72	40	70	45	60	43	64	54	69	49	64	46	66	52	60	52
9....	62	43	67	42	75	36	69	49	76	47	61	53	74	40	74	39	61	40	66	52	72	42	70	44	65	48	58	52
10....	78	47	69	43	82	37	82	41	82	49	81	58	78	46	78	42	67	42	71	53	74	45	75	46	72	46	60	52
11....	85	58	72	60	84	37	84	44	81	51	70	59	81	48	83	43	69	46	77	52	80	50	79	46	78	50	68	53
12....	70	45	72	45	85	38	81	43	88	52	60	55	86	48	85	43	60	43	75	52	83	53	80	48	74	51	58	53
13....	82	47	59	47	80	37	83	45	87	55	75	53	86	54	80	44	78	46	76	55	88	52	74	50	75	50	63	54
14....	79	55	59	50	71	36	77	56	78	59	77	68	82	54	68	47	72	46	79	61	87	55	65	44	78	65	76	57
15....	80	52	62	40	74	28	81	55	74	44	77	58	74	51	73	45	69	43	80	59	82	53	68	43	78	56	74	57
16....	76	49	60	40	75	29	72	39	77	42	61	58	77	41	78	39	65	44	68	54	80	50	74	36	68	49	60	54
17....	74	47	62	48	77	34	72	54	78	50	58	55	78	51	77	37	57	44	67	55	78	49	74	42	66	56	61	54
18....	70	39	67	49	73	37	73	42	82	53	58	54	82	44	78	41	58	42	66	50	83	51	73	47	67	46	62	52
19....	72	42	68	42	70	40	76	38	72	47	70	50	76	47	71	43	68	40	63	51	76	48	64	44	62	48	58	50
20....	78	42	66	47	74	30	80	36	76	43	78	55	75	43	73	37	68	48	73	51	70	44	68	37	69	49	73	51
21....	85	44	68	40	73	29	85	37	75	43	73	56	76	37	76	34	68	44	73	50	78	44	72	35	76	46	6	

TABLE 3.—Maximum and minimum temperatures for September, 1912. District No. 12—Continued.

Date.	Walla Walla, Wash.		Oregon.																							
			Ashland.		Baker.		Eugene.		Gold Beach.		Hermiston.		Marshfield.		Portland.		Prineville.		Roseburg.		The Dalles.		Vale.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.....	69	52	71	49	63	40	68	48	68	51	73	53	68	49	67	54	.....	.....	69	52	.....	.....	73	45		
2.....	65	54	59	46	66	45	61	47	66	50	66	56	63	51	59	50	.....	.....	58	49	.....	.....	74	48		
3.....	66	50	56	44	55	40	62	50	65	50	67	53	65	49	65	47	.....	.....	62	48	.....	.....	78	47		
4.....	66	47	66	47	55	41	64	51	61	48	70	43	62	44	66	44	.....	.....	68	51	.....	.....	58	46		
5.....	71	49	57	49	59	38	62	49	60	51	75	42	58	50	63	53	.....	.....	62	51	.....	.....	70	37		
6.....	70	53	52	45	66	45	64	50	62	50	70	57	64	51	69	55	.....	.....	62	52	.....	.....	74	54		
7.....	66	52	63	45	59	44	62	52	64	51	71	55	62	50	63	55	.....	.....	66	50	.....	.....	71	50		
8.....	70	54	65	47	60	40	67	53	64	51	73	48	68	52	66	55	.....	.....	68	50	.....	.....	71	39		
9.....	75	50	72	43	65	36	69	47	72	52	78	42	74	44	73	48	.....	.....	74	46	.....	.....	75	47		
10.....	77	51	82	42	72	37	72	50	72	52	84	41	84	44	84	54	.....	.....	84	49	.....	.....	79	39		
11.....	82	56	79	43	74	41	78	54	69	56	85	41	82	49	84	55	.....	.....	87	50	.....	.....	84	37		
12.....	85	60	81	48	74	42	80	57	68	50	87	44	82	51	81	53	.....	.....	85	49	.....	.....	83	40		
13.....	84	61	85	52	75	41	81	56	68	50	88	46	80	54	84	58	.....	.....	88	52	.....	.....	86	41		
14.....	76	51	86	55	65	38	78	54	64	50	84	50	70	48	78	65	.....	.....	88	53	.....	.....	80	39		
15.....	78	45	83	58	64	34	72	50	62	54	80	36	64	49	81	62	.....	.....	87	48	.....	.....	71	34		
16.....	80	46	74	51	73	34	75	52	67	57	89	42	66	55	66	55	.....	.....	64	57	.....	.....	75	24		
17.....	78	55	70	54	74	36	76	53	72	54	80	52	66	52	72	58	.....	.....	71	50	.....	.....	84	29		
18.....	82	56	79	47	80	41	78	53	80	60	86	42	66	50	73	55	.....	.....	78	47	.....	.....	84	37		
19.....	73	50	83	48	63	43	76	51	73	54	77	45	71	44	76	46	.....	.....	75	44	.....	.....	73	53		
20.....	75	46	85	59	65	33	79	54	62	47	88	32	79	44	78	53	.....	.....	85	45	.....	.....	73	36		
21.....	78	48	84	52	70	31	78	53	56	46	80	31	68	42	82	53	.....	.....	86	46	.....	.....	75	24		
22.....	71	53	81	50	62	37	76	47	61	46	76	41	66	49	70	50	.....	.....	76	47	.....	.....	71	25		
23.....	66	50	72	47	54	32	68	42	66	47	71	56	67	39	62	47	.....	.....	67	43	.....	.....	71	27		
24.....	67	47	73	41	56	30	70	44	68	51	76	51	69	40	68	42	.....	.....	70	40	.....	.....	67	34		
25.....	73	50	78	44	66	26	71	44	80	60	76	31	66	39	69	44	.....	.....	78	39	.....	.....	70	23		
26.....	79	46	85	46	68	33	74	45	68	50	80	35	80	37	76	48	.....	.....	82	41	.....	.....	76	30		
27.....	75	44	66	54	70	35	73	45	64	49	78	35	66	46	79	52	.....	.....	73	49	.....	.....	83	30		
28.....	73	45	72	50	69	34	74	47	63	52	74	34	67	51	78	53	.....	.....	65	54	.....	.....	77	32		
29.....	72	49	75	49	73	37	76	49	67	49	76	34	70	45	72	54	.....	.....	76	50	.....	.....	78	34		
30.....	74	50	69	49	77	38	70	44	62	51	76	39	66	46	65	55	.....	.....	62	47	.....	.....	84	30		
Mean.....	73.9	50.7	73.4	48.5	66.4	37.4	71.8	49.7	66.5	51.2	77.8	43.8	69.3	47.1	72.3	52.4	.....	.....	73.9	48.3	.....	.....	75.6	37.4		

\*, b, c, etc., indicate respectively 1, 2, 3, etc., days missing from the record.  
 §§ Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

## WEATHER, FORECASTS, AND WARNINGS.

By EDWARD H. BOWIE, District Forecaster.

*Alaska.*—Pressure averaged below normal, especially over northern districts, where the negative departures were from 0.14 to 0.16 inch. Lows occurred about the 1st, 4th, 7th, 9th–10th, 13th, 17th–18th, 20th, 23d, 27th–28th, and 30th; and highs about the 2d–3d, 5th, 12th, 19th, 21st–22d, and 24th–25th.

*Honolulu.*—Pressure averaged slightly above the normal. Lows occurred on the 3d–4th, 9th–10th, 11th–12th, 19th–21st, and 23d–24th; and highs on the 2d, 6th, 16th–17th, 27th, and last day of the month.

*Azores.*—Pressure averaged below normal for the month. Lows occurred on the 7th–8th, 15th–16th, 20th, 21st–22d, and 29th–30th; and highs on the 1st, 4th, 10th, and 27th.

*Iceland.*—Pressure averaged decidedly above normal, there being only three or four days when it was below. Relatively low pressure occurred on the 4th, 13th, 16th, 19th, 21st–22d, 23d, 27th, and last of the month; and highs on the 2d, 6th–11th, 14th–15th, 17th–18th, 20th, 25th, and 28th–29th.

*Siberia.*—Pressure averaged above normal for the month, being especially so over northern districts. Lows occurred about the 5th–6th, 10th, 15th–16th, 24th, and 29th; and highs about the 3d–4th, 8th, 12th, 18th–19th, 27th, and last day of the month.

*Miscellaneous.*—A typhoon, the worst in half a century, visited Japan on the 22d, causing heavy loss of life, and property damage estimated at \$20,000,000. At Nagoya a tidal wave demolished the harbor and sank three steamers.

On the 29th of last month (August) a typhoon, accompanied by a tidal wave, devastated the China coast, causing enormous damage and disastrous floods.

At the beginning of the month pressure in the United States was above normal over the Northeast, the east Gulf and south Atlantic States, and on the north Pacific coast, while relatively low pressure prevailed over Manitoba, and there was an unsettled condition over the Lake region. Temperatures were above normal throughout the country, except over the northern Plateau and the northern and middle Pacific States. They were decidedly above normal over the Great Central Valleys.

The following weekly forecast was issued Sunday, September 1:

Warm weather will prevail during the next two or three days over the Middle West and during the greater part of the coming week in the Eastern and Southern States, while during the next several days temperatures will be near or below normal in the Northwestern States, the Rocky Mountain and Plateau regions and the Pacific States. An extensive area of low barometric pressure will prevail Monday and Tuesday over the Northwestern States, and it will cause showers in that region and in the Northern States from Minnesota eastward during the next several days. This disturbance will probably move eastward to the Mississippi Valley by Wednesday and prevail over the Eastern States the latter part of the week; during its movement eastward it will be attended by general showers and thunderstorms and be followed by a change to considerably cooler weather, which will make its appearance in the Northwest by Wednesday. There are no indications at the present time of a disturbance in the West Indies.

Conditions remained unsettled over the Middle Atlantic coast from the 1st to 3d and showers occurred over northern districts from the Mississippi Valley eastward, being heavy over Pennsylvania,

A high of slight intensity passed from the Plains States to a position off the New England coast from the 2d to the 5th.

On the morning of the 2d a low pressure area appeared on the north Pacific coast, passed to the Plains States by the 5th and thence northward into Canada during the 6th and 7th. This storm was probably identical with the storm that was central over the Canadian Maritime Provinces on the morning of the 9th. It caused precipitation over northern districts from the Rocky Mountains westward, the first snow of the season being reported from Nevada. Attending its passage high temperatures occurred in the Great Central Valleys.

Following the passage of this low northward on the 5th, pressure increased over the Pacific coast and Plateau districts and heavy to killing frosts were reported on the morning of the 5th in Nevada, southeastern Idaho, and southwestern Utah, and on the 6th in portions of Montana and Wyoming. The high which was of slight intensity passed eastward over a northern course to the New England coast by the 10th.

The following weekly forecast was issued Sunday, September 8:

Moderately warm weather will prevail the coming week in the Southern States, while over the Middle Atlantic and New England States, the Lake region, the Great Central Valleys, the Plains States, and the Rocky Mountain and Plateau regions temperatures will average near the normal for the season. The warm weather that now prevails in the Great Central Valleys will give way to moderate temperature Tuesday and Wednesday. The weather during the week will be generally fair, but fairly well distributed showers are probable in the Northern and Eastern States, attending the eastward movement of an area of low barometer which will prevail the first part of the week in the Northwest, the middle of the week over the North Central States, and the latter part of the week in the East. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 9th temperatures were above normal east of the Rocky Mountains and below to the westward. Negative departures of from 12° to 15° were reported over the western Plateau, and positive departures of the same magnitude over the upper Mississippi Valley. No well developed rain area crossed the country during the week, and precipitation was generally deficient, except in a few localities. Precipitation was heavy in portions of Florida.

A low pressure area over Alberta on the morning of the 7th passed to the Plains States during the next 36 hours. By the morning of the 10th it was over Ontario and on the following morning over New Brunswick with increased intensity. It caused precipitation in the north Pacific States from the 5th to 8th, but elsewhere in its course across the country it caused only light local showers. The rains in northern and central California on the 5th and 6th were the first general ones of the season. Regarding the forecasts issued for them, the Commercial News of San Francisco, Cal., under date of September 10, says:

To the excellent service of the Weather Bureau credit must be given for the saving of exposed fruit, timely warnings by telephone to fruit-growing sections, giving growers ample time to protect the fruits on the trays.

This storm gave high temperatures in portions of the upper Mississippi Valley and caused a tornado in Ramsey County, N. Dak., on the 9th. A hail storm on the 12th caused heavy damage to the Connecticut tobacco crop.

Following this storm the most important high of the month passed inland over the north Pacific coast during the 9th-10th, and on the 12th was over the southern Plains States with decreased intensity. It advanced thence eastward to a position off the New England coast by the morning of the 14th.

From the 6th to 13th conditions were unsettled off the east Gulf coast and reports from land stations as well as those from vessels by wireless indicated the existence of a disturbance of slight intensity in that region. On the afternoon of the 12th, special observations indicated that the storm was increasing in intensity, and advices and warnings were issued to ports on the Gulf in the following message:

Hoist northeast storm warnings New Orleans to Pensacola 2 p. m. Disturbance central southeast of mouth of Mississippi River, apparently moving northwest. Increasing north to east winds this afternoon and to-night.

On the 13th the following advisory message was disseminated:

Disturbance southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on the northwestern Florida, and the Alabama, Mississippi, and eastern Louisiana coasts.

By the morning of the 14th the storm had passed inland with decreased intensity and was central over southern Mississippi. Thence it passed up the Ohio Valley, causing showers and thunderstorms over the lower and middle Mississippi Valley and over northern and central districts east of the Mississippi River. On the 16th it was off the middle New England coast, with slightly increased intensity. It caused high winds of local character over portions of the middle Atlantic States, and on the afternoon of the 15th a tornado was reported in Onondaga County, N. Y.

The following remarks regarding this storm are taken from the report of the official in charge at Pensacola:

On the night of the 11th shipping interests were advised of a disturbance south of the Mississippi coast and to exercise caution until further advices. On the morning of the 12th small craft warnings were ordered displayed again, and were ordered changed to northeast storm warnings at 12.37 p. m., with the information that the disturbance was central southeast of the mouth of the Mississippi River, apparently moving northwest, and increasing north to east winds could be expected during the afternoon and night. This information was given general distribution. At 8.48 a. m., on Friday the 13th, an advisory message was received, stating: "Disturbance central southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on north-west Florida, and the Alabama, Mississippi, and east Louisiana coasts." This was immediately sent out by messenger and telephone, reaching all shipping interests by 10 a. m., the official in charge adding remarks that the strongest winds would be from the southeast and personally warned all interests affected to take extreme precautions. On the strength of this information the fish companies moved all smacks (about 23) across the bay to a sheltered anchorage; timber was towed to safer places and extra dogs and chains put on. Warnings were changed to southwest at 10 a. m. of the 14th.

On the 12th pressure was low and fell from 29.85 to 29.71 inches, the weather was generally cloudy with strato-cumulus clouds from the northeast and light scattered showers after 11 a. m. The winds were from north to northeast, increasing from 11 to 23 miles per hour; a squall of 33 miles from the north occurred at 6.33 p. m.

On the 13th pressure remained between 29.66 and 29.70 inches; with generally cloudy weather. Light rains occurred in the morning and continuous rain after 12.20 p. m., amounting to 0.75 inch. Winds gradually increased, northeast prevailing to 3 p. m., east from 3 p. m. to 9 p. m., then southeast past midnight. Easterly squalls began between 9 and 10 a. m., increasing in severity after 3 p. m., and passing the 50-mile rate in all hours after 7 p. m. Fifty-three miles from the southeast was registered at 7.18 p. m., 50 southeast at 8.14 p. m., 59 southeast at 9.21 p. m., with an extreme of 62 miles; 58 southeast at 10.57 p. m., and 58 southeast at 11.56 p. m. Temperature fluctuated between 74° and 80°. There was a moderate but increasing southeast

surf with normal tide at noon; at 2 p. m. the tide was rising slowly and the surf was high; at 7 p. m. the tide was 1 foot above normal.

On the 14th extremely severe southeast squalls continued to 7 a. m., reaching 68 miles southeast at 12.24 a. m., and 74 southeast at 2 a. m., with an extreme velocity of 86 miles at 1.58 a. m. The next squall, at 2.26 a. m., carried away the anemometer, which had worked loose on its stand. The anemometer record was started again at 8.26 a. m. It was the general opinion that the squall at 2 a. m. was the hardest, but the severe squalls of about 60 miles continued to 6 a. m., south winds prevailing after 3 a. m. Thunder was heard 1.50 a. m. to 2.20 a. m., and lightning occurred from 2 a. m. to 3 a. m. Southerly squalls continued during the passage of a thunderstorm that came from the southwest. Pressure fell to 29.62 inches at 2.30 a. m., then began rising rapidly, reaching 30 inches at 9 p. m. Rains ceased at 4 p. m., amounting to 0.75 inch for the day. The sky cleared between 7.30 and 8.30 p. m. The tide during the night of the 13th-14th rose 2 feet above normal high water, the waves were about 4 feet high, and the wind carried the spray over the American National Bank Building.

#### DAMAGE.

Beginning at Pensacola entrance and making a circuit of Pensacola Bay, the following damage by the storm was observed: Fishing smack *Two Boys* ashore. The tracks of the Pensacola Electric Co. were undermined for a distance of about 1,200 feet immediately south of Bayou Grande; also about 1,000 feet on Maine Street; their tracks were also inundated by high tide at the corner of Intendencia Street and Ninth Avenue. Private wharves along the bay shore from Fort Barrancas to Baylen Street were generally carried away, together with numerous small houses on the wharves which were used either as houses or for fishermen's equipment. The entire beach was strewn with timber and about 20 barges went ashore; only a few barges remained at anchor and retained their cargoes of lumber. The British S. S. *Meltonian*, moored along the east side of Perdido Wharf, broke away and went aground on Rat Island. Her local agents were notified at 10 a. m. of the 13th of expected conditions, and were phoned again in the afternoon, calling attention to her dangerous position. She could have weathered the storm without mishap at anchor in the bay. The fish companies were advised to take their fishing smacks across the bay in shelter of the peninsula. This advice they heeded. There were in all about 23 fishing smacks, valued at \$7,000 each. The tug *Brittania* also took the precaution to anchor across the bay after being advised that severe southeast squalls were expected during the night. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift. One of them damaged the steamer *Edna C*, the quartermaster's steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. At Jefferson Street Wharf a house-lighter sank with a cargo of naval stores. Traffic over the L. & N. R. R. was suspended for about 18 hours on account of the damage to the bridge by being rammed with rafts of timber. The west end of the roof of Monarch Pavilion on Santa Rosa Island was blown off and a portion of the southeast corner of the roof of the Gulf Beacon Inn was torn off by the gales. The British S. S. *Conniston* went ashore about 75 miles east of Pensacola. The fishing smack *Isabelle* went ashore about 12 miles west of Pensacola entrance. The owners of the coastwise steamer *Tarpon* were advised on the 13th to hold the *Tarpon* in St. Andrews Bay. This they did for 24 hours and she avoided the storm. The damage by wind throughout the city was slight. The Western Union lines went down during the night and were out of order until 1 p. m. of the 14th. Electric light circuits were cut off about 1 a. m. of the 14th. Telephone lines to the navy yard were blown down. The barkentine *Golden Rod* put into port on the afternoon of the 14th with five sails missing and two yardarms broken. The captain stated that he encountered the storm off Cape San Blas on the night of the 12th. The squalls grew more frequent and severe and at night he was driven along before them under bare poles, passing about 60 miles south of Pensacola at 11 p. m., when his barometer fell to 29 inches. He said the squalls were terrific and the ship remained over on her beam ends during the height of the storm. The British schooner *Hieronymus* weathered the storm at anchor off Mobile entrance. The captain said that the seas were the highest he had ever seen. The worst of the storm occurred about 2.40 a. m.

The estimated damage by tide and waves in Pensacola is \$23,500, and by winds \$1,500.

The following is an extract from the report of the official in charge at Mobile, Ala.:

The storm that passed inland from the Gulf on the night of September 13th-14th, with its center not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of this city. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at the time of

sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but, during the east and southeast winds, rose rapidly and reached the level of the top of the lowest wharves at about 4.30 a. m. A maximum rate of 32 miles an hour was attained at 2.50 a. m. of the 14th, and the highest velocity, 52 miles an hour, occurred at 3.50 a. m. A total rainfall of 1.30 inches fell during the storm. The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m. of the 13th. A slight rise in pressure occurred about 11 p. m., and a rapid fall began after midnight, the lowest, 29.37 inches, occurring at 3.30 a. m. The pressure remained almost stationary for about half an hour and then rose steadily until 29.65 was reached at 8 a. m. of the 14th.

The loss of property in the city of Mobile from the high wind is estimated at \$8,000. A church, a very weak structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at \$4,000. The larger vessels had been made fast with extra cables and many of the smaller vessels had ascended the river to a place of safety. The principal loss to shipping interests was a barge valued at \$2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. The steamboat, which is about 100 feet in length, had been fastened with extra lines, but during the highest winds all parted except the anchor chain, and the boat swung around against submerged piling. Storm warnings were displayed from 2 p. m. of September 12 and wide publicity was given all information.

The following are editorials referring to the storm and the warnings issued in connection therewith:

The Mobile Daily Item of September 14 says:

\* \* \* Sweeping inland from the central Gulf last night, the tropical disturbance, which has been gathering energy for several days past, spent its fury and passed on into central Mississippi, causing damage that will run into the thousands of dollars. Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

The Pensacola Journal of September 15th:

\* \* \* The small damage done is due to the fact that owners of vessels had taken precautions, while the fleet of foreign vessels at anchor was small and the masters of the vessels had been given ample time to prepare for the blow which, however, was worse than anticipated earlier in the night.

The following weekly forecast was issued Sunday, September 15:

A change to much cooler weather will overspread the Middle West and the Southwest Monday and Tuesday and the Eastern States Monday night and Tuesday, and will be followed by unseasonably cool weather in these regions the greater part of the coming week. There will be frosts the first part of the week in the Rocky Mountain region and the Northwestern States and Tuesday and Wednesday in the upper Mississippi Valley and along the northern border eastward. A change to warmer weather will overspread the Northwestern States, the Rocky Mountain region, and Plains States by the middle of the week. A disturbance that is now over the Ohio Valley will advance eastward and be attended by unsettled weather and rains Monday in the Atlantic States, the region of the Great Lakes, and along the Gulf coast. The next disturbance to cross the country will appear in the far West Monday or Tuesday, cross the Great Central Valleys about Thursday, and the Eastern States near the close of the week; considerably cooler weather will follow this disturbance. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 16th, temperatures were below normal from the Plains States westward, except along the immediate Pacific coast. Departures of 12° occurred over the Rocky Mountain region. In the East, temperatures were above normal, being 6° in excess from the Ohio Valley to Texas.

Precipitation was generally above normal over the east Gulf and south Atlantic States as well as over portions of the Plains States, in the northern Rocky Mountain region and portions of the upper Mississippi Valley, elsewhere it was below normal.

A high-pressure area appeared over Saskatchewan on the morning of the 13th and advanced to Alberta by the 14th. During the next 48 hours it passed to the western

Plains States and Rocky Mountain region, with decreased intensity. During the 16th, 17th, and 18th frosts occurred over portions of Montana, Colorado, North and South Dakota, and Wyoming, warnings of which were previously disseminated. The high remained stationary over the region mentioned for several days, and an offshoot from it was central on the 18th over Kansas. On the day following it was over West Virginia, and by the morning of the 21st it had joined with a high-pressure area that was central over eastern Quebec. This high remained over the Northeast with varying intensity until the 26th.

Beginning with the 16th conditions became unsettled over the Mississippi Valley and attending pressure was slightly below normal, with showers over an area from Texas to the Lake region. A center of low pressure was central on the morning of the 18th over the Michigan Peninsula and by the following morning was over eastern Quebec. A low in the meantime had advanced from Saskatchewan on the 18th to Minnesota on the 20th and pressure was low over Texas. By the morning of the 21st the northern disturbance had retrograded to North Dakota and there was a low center over the west Gulf States. By the morning of the 22d the northerly low was over western Ontario and the Gulf disturbance had moved to a position south of the Louisiana coast. On the morning of the 23d there was no trace of the northern low, while the low on the Gulf was central south of Mobile, with increased intensity, and during the next 24 hours passed to South Carolina with decreased intensity. Although pressure remained slightly below normal over the middle Atlantic coast for the next two or three days, no further developments occurred.

During the 24 hours ending at 8 a. m. of the 17th pressure rose decidedly over the north Pacific States and remained relatively high over that region until the 20th, on which date a center of high pressure had passed inland from the ocean and was central over Idaho. On the following morning the high area extended from Utah to the Texas Panhandle with decreased intensity and during the next 24 hours it almost entirely disappeared from the weather map. On the morning of the 21st frosts were reported from Colorado, Wyoming, Iowa, and Kansas, warnings of which had been previously issued.

The following weekly forecast was issued Sunday, September 22:

The general distribution of atmospheric pressure over the North American Continent and the adjacent oceans is such as to indicate cool weather the coming week in all parts of the country, except the Pacific States. Frosts are probable in the Plains States, the upper Mississippi Valley, and thence eastward along the northern border. There will be rains Monday and probably Tuesday in the Eastern and Southeastern States, followed by generally fair weather in these districts until near the close of the week. Elsewhere the weather will be generally fair during the next several days. The next disturbance of importance to cross the country will appear in the far West Thursday or Friday, and prevail over the middle West near the close of the week; this disturbance will be followed by decidedly colder weather.

There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 23d, temperatures were decidedly below normal from the Rocky Mountain region eastward over the great central valleys, being from 9° to 12° below over the Plains States and eastern slope of the mountains. Along the Gulf, Atlantic, and Pacific coasts temperatures averaged slightly above normal.

Precipitation was fairly well distributed over the country from the ninety-fifth meridian eastward, while to the westward it was generally deficient. No precipitation occurred over the southern Rocky Mountain and Plateau regions nor on the Pacific coast.

Following the movement of the high previously mentioned a low appeared over British Columbia on the 22d and during the next 24 hours moved to Wyoming. On the 24th there were two centers, one over Oklahoma and the other over New Mexico. By the 25th one center was over Minnesota and the other over southern Texas. On the 25th storm warnings were issued for the upper Lakes, and winds of storm force occurred over the territory indicated in the warnings. On the 26th one center of low pressure was over Ontario, and pressure was relatively low over the Gulf. By the following morning the northern low had passed from the field of observations, while the Gulf disturbance had decreased in intensity and lost its identity. This disturbance caused precipitation quite generally throughout the country, except in the Southwest and in Pacific coast districts.

Following the passage of this low eastward, pressure rose over the northern Rocky Mountain region and on the 25th a high was central over western Nebraska. On the 26th it was over Missouri and another center of high pressure had appeared over western Montana. On the 27th the high centers were over Indiana and South Dakota, respectively. On the 28th pressures of 30.30 inches or more were reported from the middle Atlantic coast to Alberta, with high centers over New England and the Plains States, and temperatures were decidedly below normal over the districts mentioned. On the morning of the 26th frosts were reported from Kansas, Iowa, Minnesota, Wisconsin, Missouri, Oklahoma, and the Texas Panhandle, warnings of which had been previously issued. Considerable damage was reported to crops. The area over which frosts occurred spread eastward and on the mornings of the 27th and 28th they were reported over the Lake region, Indiana, Illinois, Iowa, the middle Atlantic States, and interior of New England. Warnings were previously issued in all cases.

The following weekly forecast was issued Sunday, September 29:

The coming week will be one of cool and generally fair weather over the greater part of the country east of the Rocky Mountains and during the first part of the week there will be frosts in the Rocky Mountain region, the Plains States, the upper Mississippi and Ohio Valleys, the Lake region, and the north Atlantic States. West of the Rocky Mountains temperatures will average near or above the normal. The next general disturbance to cross the country will appear in the far West Monday or Tuesday, cross the great central valleys about Wednesday or Thursday and the Eastern States Friday or Saturday. This disturbance will be preceded by a general rise in temperature and be attended by well-distributed rains. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 30th temperatures averaged above normal over the south Atlantic, east Gulf, and portions of the Pacific coast districts. Elsewhere they were below normal, especially so over the Rocky Mountain region, the Plains States, and the upper Mississippi Valley, being as much as 15° below over the western Plains States.

Precipitation was light over interior and western portions of the country, while over the Atlantic coast districts, southwestern Texas, and the western upper Lake region it was above normal. Elsewhere it was below the seasonal average.

A fall in pressure set in over the Ohio Valley on the evening of the 28th and a low was over western Pennsylvania on the morning of the 29th. By the morning of the 30th the low had passed to eastern Nova Scotia, the high pressure area which was in the Northeast having passed to the ocean. There was also a high over Kansas, with a tongue extending eastward to the middle Atlantic

States. Frosts occurred in Kansas, Iowa, Indiana, Illinois, Ohio, Wisconsin, Pennsylvania, New York, and at scattered places in the interior of the New England States, warnings of which were previously issued.

*Average temperatures and departures from the normal.*

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since Jan. 1.	Average departures since Jan. 1.
New England.....	11	60.5	0.0	-12.0	-1.3
Middle Atlantic.....	15	68.1	+1.9	-10.8	-1.2
South Atlantic.....	10	76.8	+3.7	-1.7	-0.2
Florida Peninsula <sup>1</sup> .....	9	80.9	+1.6	+3.6	+0.4
East Gulf.....	11	77.8	+3.0	-8.1	-0.9
West Gulf.....	11	77.8	+2.1	-11.8	-1.3
Ohio Valley and Tennessee.....	14	70.8	+2.6	-18.5	-2.1
Lower Lakes.....	11	64.4	+1.3	-26.3	-2.9
Upper Lakes.....	13	60.8	+1.7	-27.0	-3.0
North Dakota <sup>1</sup> .....	8	51.6	-4.6	-16.2	-1.8
Upper Mississippi Valley.....	14	65.6	+0.8	-24.7	-2.7
Missouri Valley.....	12	62.8	-2.6	-16.5	-1.8
Northern slope.....	9	49.9	-7.5	-20.3	-2.3
Middle slope.....	6	63.4	-4.2	-21.2	-2.4
Southern slope <sup>1</sup> .....	8	73.8	-1.6	-10.7	-1.2
Southern Plateau <sup>1</sup> .....	10	67.3	-3.7	-9.3	-1.0
Middle Plateau <sup>1</sup> .....	10	54.7	-5.7	-12.8	-1.4
Northern Plateau <sup>1</sup> .....	10	54.3	-4.8	-10.1	-1.1
North Pacific.....	7	58.2	+1.3	+8.2	+0.9
Middle Pacific.....	7	64.0	+0.6	+1.5	-0.2
South Pacific.....	4	68.0	+0.8	+2.3	+0.3

<sup>1</sup> Regular Weather Bureau and selected cooperative stations.

*Average precipitation and departures from the normal.*

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
New England.....	11	2.63	84	-0.50	-1.90
Middle Atlantic.....	15	5.34	165	+2.10	+1.00
South Atlantic.....	11	5.47	117	+0.80	-0.80
Florida Peninsula <sup>1</sup> .....	9	8.08	109	+0.70	+10.00
East Gulf.....	11	5.02	128	+1.10	+14.40
West Gulf.....	10	1.48	43	-2.00	-3.50
Ohio Valley and Tennessee.....	14	2.77	100	0.00	+3.90
Lower Lakes.....	10	3.64	128	+0.50	+1.60
Upper Lakes.....	13	3.46	106	+0.20	-0.30
North Dakota <sup>1</sup> .....	8	2.20	138	+0.60	+2.50
Upper Mississippi Valley.....	15	2.20	76	-0.70	-2.00
Missouri Valley.....	12	3.21	118	+0.50	-2.20
Northern slope.....	9	1.87	70	-0.80	-0.20
Middle slope.....	6	2.33	121	+0.40	+0.80
Southern slope <sup>1</sup> .....	8	2.36	89	-0.30	+2.10
Southern Plateau <sup>1</sup> .....	9	0.33	35	-0.60	-0.20
Middle Plateau <sup>1</sup> .....	11	0.32	35	-0.60	-0.60
Northern Plateau <sup>1</sup> .....	10	0.96	100	0.00	+2.40
North Pacific.....	7	1.74	74	-0.60	-1.30
Middle Pacific.....	7	1.97	168	+0.80	-2.60
South Pacific.....	4	0.04	17	-0.20	-0.40

<sup>1</sup> Regular Weather Bureau and selected cooperative stations.

*Average relative humidity and departure from the normal.*

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	82	+1	Missouri Valley.....	79	+13
Middle Atlantic.....	80	+3	Northern slope.....	69	+14
South Atlantic.....	83	+3	Middle slope.....	66	+18
Florida Peninsula.....	82	+1	Southern slope.....	65	+2
East Gulf.....	82	+6	Southern Plateau.....	30	0
West Gulf.....	69	-5	Middle Plateau.....	44	+6
Ohio Valley and Tennessee.....	76	+4	Northern Plateau.....	53	+1
Lower Lakes.....	80	+7	North Pacific.....	76	+4
Upper Lakes.....	82	+5	Middle Pacific.....	68	+1
North Dakota.....	78	+12	South Pacific.....	67	+1
Upper Mississippi Valley.....	76	+4			

*Average cloudiness and departure from the normal.*

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	6.3	+ 1.1	Missouri Valley.....	4.7	+ 0.7
Middle Atlantic.....	5.6	+ 1.0	Northern slope.....	5.8	+ 1.8
South Atlantic.....	6.2	+ 1.5	Middle slope.....	4.6	+ 1.2
Florida Peninsula.....	6.2	+ 0.8	Southern slope.....	4.0	+ 0.2
East Gulf.....	5.6	+ 1.0	Southern Plateau.....	1.8	- 0.7
West Gulf.....	3.5	- 0.7	Middle Plateau.....	3.0	+ 0.1
Ohio Valley and Tennessee.....	4.1	- 0.3	Northern Plateau.....	4.1	+ 0.5
Lower Lakes.....	5.7	+ 0.9	North Pacific.....	4.9	- 0.4
Upper Lakes.....	6.4	+ 1.2	Middle Pacific.....	3.8	+ 0.4
North Dakota.....	5.9	+ 1.5	South Pacific.....	2.6	0.0
Upper Mississippi Valley.....	4.8	+ 0.5			

*Data, maximum wind velocities.*

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Buffalo, N. Y.....	19	56	sw.	North Head, Wash...	1	56	se.
Detroit, Mich.....	5	68	nw.	Do.....	30	64	se.
Lewiston, Idaho.....	30	55	w.	Pensacola, Fla.....	13	59	se.
Mobile, Ala.....	14	52	se.	Do.....	14	74	se.
Mount Tamalpais, Cal.	1	74	nw.	Point Reyes Light, Cal.....	30	64	nw.
Do.....	2	56	nw.	Tatoosh Island, Wash.	14	54	e.
Do.....	3	54	nw.	Do.....	30	60	s.
Do.....	19	50	nw.				
Do.....	30	72	nw.				

**RIVERS AND FLOODS, SEPTEMBER, 1912.**

By H. C. FRANKENFIELD, Professor in Charge, River and Flood Division.

The only flood in any of the larger rivers was that which occurred in the Wisconsin River during the first week of the month. This flood was the third of the summer of 1912, and was caused by excessive rains on the night of August 31. Flood stages were exceeded, and at Wausau, Wis., the crest stage was 12.6 feet, or 2.6 feet above the flood stage, at 8.30 p. m., September 1. Warnings were issued as usual, the first at 2 a. m., September 1, and a large amount of property was saved thereby. The loss, so far as could be ascertained, amounted to between \$50,000 and \$75,000. A more detailed account of the flood will be found in another portion of this review.

About 24 hours later, during the night of September 1-2, following a period of unusual heat, a series of violent local rainstorms swept over southwestern Pennsylvania and the Panhandle of West Virginia. All the smaller streams soon became raging torrents, and at least 20 persons were drowned. Railroads were put out of commission, bridges and houses were carried away, and the property losses were enormous. One estimate placed the losses at \$5,000,000, of which sum \$2,000,000 was credited to the railroads. These figures are probably somewhat

too large, but in any event the total losses doubtless amounted to several millions of dollars. These small floods caused a decided rise in the Ohio River, but not to flood stages. Pittsburgh reported a stage of 17.9 feet, 4.1 feet below the flood stage, at 3 a. m., September 4.

Heavy rains over the South Atlantic States on September 23 and 24, caused decided rises in the rivers of southern Virginia and the Carolinas, for which warnings were issued wherever necessary. Flood stages were not reached except in the Santee River, but as the rivers had previously been quite low, the warnings permitted the safeguarding of considerable property and live stock in the river bottoms.

Nothing of special interest developed over other river districts.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

## SPECIAL PAPERS ON GENERAL METEOROLOGY.

## RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Anonymous publications are indicated by a ———.

**Baden. Zentralbureau für Meteorologie u. Hydrologie.**

Deutsches meteorologisches Jahrbuch für 1911, Baden. Karlsruhe. 1912. 84 p. f°.

**Bates, D. C.**

Meteorology of New Zealand. Wellington, N. Z. 1912. 16 p. 8°. (*Reprint*: The New Zealand Year-book.)

**Besançon. Observatoire national astronomique, chronométrique et météorologique.**

Bulletins météorologiques 24 et 25, Années 1908, 1909. Besançon. 1911. 12 p. 4°.

**Bosnia-Herzegovina.**

Ergebnisse der meteorologischen Beobachtungen an den Landesstationen, im Jahre 1910, nebst einem Anhang. Sarajevo. 1911. xvi, 279, 109 p. f°.

**Canada. Meteorological service.**

Report for 1907. Ottawa. 1911. xx, 748 p. 4°.

Report for 1908. Ottawa. 1912. xxi, 520 p. 4°.

**Capodimonte. Reale osservatorio.**

Osservazioni meteoriche, 1911. n. t. p. 12 p. 8°.

Riassunto delle osservazioni meteorologiche fatte durante l'anno 1909. [Napoli. 1911.] 22 p. 8°.

Riassunto delle osservazioni meteorologiche fatte durante l'anno 1910. [Napoli. 1912.] 21 p. 8°.

**Carney, Frank.**

The climate of Ohio. n. p. [1912.] p. 191-201. 8°. (Sci. lab'y, Denison university. Bulletin, Mar., 1912, v. 17, p. 191-201.)

**Cleland, J. Burton.**

On the occurrence of explosive or booming noises (Barisal guns) in central Australia. (*From*: Roy. soc., N. S. W., Jour. & proc., v. 45, pt. 2, Sydney. 1912. pp. 187-203.)

**Concarneau. [Laboratoire maritime.]**

Observations météorologiques faites au laboratoire, 1911. Concarneau. 1912. 36 p. 8°. (Travaux sci. du laboratoire de zool. & de physiol. marit. de Concarneau, t. 4, fasc. 1, 1912.)

**Dechevrens, Marc.**

La méthode de prévision du temps de M. G. Guilbert expliquée par la théorie hydro-thermodynamique des tourbillons. [Roma. 1912.] 9 p. 4°. (*Reprint*: Atti. Pontif. acc. Romana dei Nuovi Lincei. Anno 65, 16. giugno 1912.)

**Dutch West Indies. Department van den landbouw in Suriname.**

Meteorologische waarnemingen in Suriname en Curaçao in het jaar 1911. Amsterdam. [1912.] [16] p. 8°.

**Eiffel, Gustave.**

La résistance de l'air et l'aviation. Expériences effectuées au laboratoire du Champs-du-Mars. 2<sup>me</sup> éd. Paris. 1911. vii, 252 p. 27 pl. f°.

**Expédition antarctique française, (1903-1905).**

Hydrographie, physique du globe [météorologie, magnétisme], par A. Matha et J.-J. Rey. Paris. 1911. vi, 615 p. 9 pl. 4°.

**Fowler, John S. & Marriott, William.**

Our weather. London. 1912. xi, 131 p. 16°. (The Temple primers.)

**France. Bureau central météorologique.**

Annales. Année 1907, I, Mémoires. Paris. 1911. var. pag. f°.

Annales. Année 1909, II, Observations. Paris. 1911. var. pag. f°.

Annales. Année 1909, III, Pluies. Paris. 1911. var. pag. f°.

**France. Service hydrométrique du bassin de la Seine.**

Observations centralisées pendant l'année 1910-1911. [Paris. 1912. 6 sheets.] f°.

Résumé des observations centralisées pendant l'année 1910-1911. [Paris. 1912.] 31 p. f°.

**Friederichshafen. Drachenstation am Bodensee.**

Ergebnisse der Arbeiten im Jahre 1911. Mit Anhang: Vertikale Temperaturgradienten in den Jahren 1910 u. 1911. Stuttgart. 1912. iv, 73 p. f°.

**Froc, L[ouis].**

Signaux aux marins. Note présentée à la Commission du Comité international (Londres, 1909). T'ou-sè-wè. 1909. 23 p. 8°. (Observatoire de Zi-ka-wei. [Publication].)

**Galli, Ignazio.**

L'inverno tardivo del 1912 e le irregolarità delle stagioni nei secoli scorsi. Roma. 1912. 56 p. 4°. (*Reprint*: Mem. Pontif. acc. Romana dei Nuovi Lincei, v. 30.)

**Gironde. Commission météorologique.**

Bulletin, année 1910. Bordeaux. 1911. 59 p. 8°.

**Günther, S.**

Bemerkungen zur Geschichte der Phänologie. [n. t. p.] 8°. (*Reprint*: Archiv f. d. Geschichte d. Naturw. u. d. Technik. 3. Bd. p. 241-249.)

**Haute-Garonne. Commission météorologique.**

Bulletin, t. 2, 4<sup>me</sup> fascicule, 1909. Toulouse. 1911. var. pag. 4°.

**Hygrotimos.**

Soll man ein Barometer kaufen? Werth und Kennzeichen eines zuverlässigen Barometers. 2d ed. [Göttingen. 1899.] 13 p. 8°.

**Ille-et-Vilaine. Commission météorologique.**

Bulletin annuel, 1910. Rennes. 1911. 24, 17 p. f°.

**Leyst, Ernst.**

Luftdruck u. Sonnenflecken. Moscou. 1912. ii, 65 p. 8°. (*Reprint*: Bull. de la soc. imp. des naturalistes de Moscou, 1910, p. 93-158.)

**Loppin, T. D.**

Über die verschiedenen Arten des Frostschutzes und ihre Resultate. 2d ed. Göttingen. [1905.] 16 p. 8°.

**Loveland, G. A. & Perin, S. W.**

Evaporation from a free water surface at Lincoln, Neb. Lincoln, Neb. 1912. p. 193-197. illust. 8°. (*Reprint*: Univ. Neb. Agr. exp. sta., 25th Ann. rept.)

**Moscow. Kaiserliches Universität. Meteorologisches Observatorium.**

Beobachtungen, 1910. Moskva. 1912. vi, 139 p. 8°.

Beobachtungen, 1911. Moskva. 1912. vi, 143 p. 8°.

**Mississippi river commission.**

Stages of the Mississippi river and of its principal tributaries, for 1911. St. Louis, Mo. 1912. lxxv, 76 p. 8°.

**Moye, Marcel.**

Météorologie populaire. Paris. 1912. vii, 323 p. 12°.

**Murray, John & Hjort, Johan, etc.**

The depths of the ocean. A general account of the modern science of oceanography. London. 1912. xx, 821 p. illus. 8°.

**Mysore. Meteorological department.**

Meteorology in Mysore for the year 1910, 18th annual report. Bangalore. 1912. xiii, 56 p. f°.

**Ogden, J. Gordon.**

The kingdom of dust. Chicago. 1912. 116 p. illus. 16°.

**Osaka (Japan). Meteorological observatory.**

Annual report, 1911. Pt. I, II. Osaka. 1912. 8°.

**Philippine Islands. Weather bureau.**

Annual report of the director for the year 1908—Pt. III. Meteorological observations made at the secondary stations during the calendar year 1908. Manila. 1912. 276 p. 4°.

**Plummer, Fred G.**

Lightning in relation to forest fires. Washington. 1912. 39 p. illus. 8°. (U. S. Forest service. Bull. 111.)

**Prussia. Königl. preussisches meteorologisches Institut.**

Ergebnisse der magnetischen Beobachtungen in Potsdam, 1911. Berlin. 1912. 40, (28) p. f°. (Kgl. Preus. meteorol. Institut, Veröffentlich. 250.)

Ergebnisse der meteorologischen Beobachtungen in Potsdam, 1911, Berlin. 1912. xxxi, 94 p. f°. (idem. Veröffentlich. 251.)

Ergebnisse der Niederschlags-Beobachtungen im Jahre 1910. Berlin. 1912. xl, 154 p. 1 map. f°. (idem. Veröffentlich. 249.)

**Pyrénées-Orientales. Commission météorologique.**

Bulletin météorologique annuel. Année 1909. Perpignan. [1911?] 52 p. 4°.

**Rijksevorsel, E[lie] van.**

Konstant auftretende secundäre Maxima und Minima in dem jährlichen Verlauf der meteorologischen Erscheinungen. Siebente Abteilung. Rotterdam. 1912. 23 p. f°.

**Sandström, J. W.**

Ueber die Energieumwandlungen in der Atmosphäre. Uppsala. 1912. 20 p. 3 pl. f°. (Kungl. Svenska vetensk. Handl. Band 47. No. 9.) [A translation of this paper appears in Bulletin, Mt. Weather observatory, 1912, v. 5, pt. 2.]

- São Paulo (Brazil), Serviço meteorológico.**  
Dados climatológicos, 1910. São Paulo. 1912. 45 p. 8°.
- Saxony. Königl. sächs. Landes-Wetterwarte.**  
Dekaden-Monatsbericht (Vorläufige Mitteilung), 1910. Jahrg. 13. Dresden. 1911. ii, 132 p. 8°.  
Deutsches meteorologisches Jahrbuch für 1909. Sachsen. 1. Hälfte. Dresden. 1911. 84 p. 8°.  
Wetterbericht, 1911. [Dresden. 1911.] 39 x 47 cm.
- Schreiber, Paul.**  
Ergebnisse der Erdbodentemperatur-Messungen im Garten der Landes-Wetterwarte zu Dresden, 1. Aug. 1907 bis 31. Dez. 1910. Dresden. 1912. 46 p. 8°. [Königl. sächs. Landes-Wetterwarte. Publikation.]
- Smith, F. C.**  
Relation of climate to the treatment of pulmonary tuberculosis. 2d ed. Washington. 1912. 17 p. 8°. (U. S. Public Health bull. 35.)
- Spain. Observatorio central meteorológico.**  
Resumen de las observaciones meteorológicas efectuadas en la Península y algunas de sus islas adyacentes durante 1910. Madrid. 1912. xv, 182 p. 8°.
- Stockbridge, Helen E[lvira]. comp.**  
A bibliography of the Southern Appalachians and White Mountain regions. [Washington. 1911.] 8°. (Reprint: Proc. Soc. American foresters, v. 6. no. 2, 1911, p. 173-254.) [Contains many references to sources for climate of the regions covered.]
- Sweden. Statens meteorologiska Central-Anstalt.**  
Meteorologiska iakttagelser i Sverige, 1911. 53de Bandet. Uppsala. [1912.] x, 157 p. 8°.
- Trimble, Robert E.**  
Colorado climatology. Ft. Collins, Colo. 1912. 56 p. 8°. (Colorado agr. coll. Agr. exp. sta. Bull. 182, Apr. 1912.)
- Tsukubasan [Observatory].**  
Ergebnisse der meteorologischen Beobachtungen, 1908. Tokio. 1911. 129 p. 8°.
- Widtsoe, J. A. & McLaughlin, W. W.**  
The movement of water in irrigated soils. Logan, Utah. 1912. 8°. (Utah agr. coll. Exp. sta. Bull. 115, p. 195-268.)
- Nature. London. v. 90. September 19, 1912.**  
**Schultz, L. G.** Weather and the ultra-violet radiation of the sun p. 68-70.  
**Harding, Chas.** The summer of 1912. p. 71-73.  
*Scientific American. New York. v. 107. September 28, 1912.*  
— New methods of measuring clouds. The work of Besson at Montsouris observatory. p. 256.  
*Scottish geographical magazine. Edinburgh. v. 28. October, 1912.*  
**Richardson, Ralph.** A comparison of the climate of Edinburgh and Bournemouth. p. 517-524.  
*Symons's meteorological magazine. London. v. 47. September, 1912.*  
— Unprecedented rainfall in Norfolk. p. 153-161.  
**Aitken, John.** Cloud particles at low temperatures. p. 165-167.  
*Terrestrial magnetism and atmospheric electricity. Baltimore. v. 17. September, 1912.*  
**Bauer, L. A.** The physical theory of the earth's magnetic and electric phenomena. No. 6. p. 115-140.  
*Académie des sciences. Comptes rendus. Paris. Tome 155. Septembre 1912.*  
**Hubert, Henry.** Sur les courants aériens en Afrique occidentale. p. 627-629.  
*Astronomie. Paris. 26 année. Septembre 1912.*  
**Flammarión, Camille.** Augmentation séculaire de la pluie à Paris. p. 406-410.  
**Romo, Ambrosio.** Note sur une nouvelle formule barométrique (type Laplace). p. 411-415.  
*Nature. Paris. 40 année. 28 septembre 1912.*  
**Loisel, [Julien].** La température à la surface du globe. p. 282-285.  
*Radium. Paris. Tome 9. Août 1912.*  
**McClelland, J. A., & Nolan, J. J.** La charge électrique de la pluie. p. 277-282.  
*Annalen der Hydrographie und maritimen Meteorologie. Berlin. 40. Jahrgang. Heft 9. 1912.*  
**Assmann, [Richard A.]** Zur Vorhersage der Niederschläge. p. 452-454.  
**Perlewitz, [Paul].** Windbeobachtungen in den höheren Luftschichten des Atlantischen und südlichen Stillen Ozeans, nach Pilotballonaufstiegen von Dr. Harry Meyer, 1909 bis 1911. p. 454-477.  
**Plassmann, J.** Beobachtungen der neutralen Punkte der atmosphärischen Polarisation. p. 478-486.  
*Meteorologische Zeitschrift. Braunschweig. Band 29. September 1912.*  
**Trabert, Wilh[elm].** Millimeter oder Millibar. p. 401-405.  
**Schmidt, Wilhelm.** Der Variograph, seine Aufzeichnungen und deren Verwendung in einigen Fragen der Gewitterforschung. p. 406-414.  
**Thraen, August.** Die Prüfung der Homogenität von Niederschlagsreihen nach graphischen Verfahren. p. 414-417.  
**Kassner, C[arl].** Nochmals der Verbesserungsvorschlag zur englischen Hütte. p. 428-429.  
**Obermayer, A[lfert] v.** Zur Farbe der Blitze. p. 433-435.  
— Resultate meteorologischer Beobachtungen im südlichen China und Laos. p. 437-438.  
**Topolansky, Moriz.** Maximum-minimum-Hygrometer. p. 439.  
— Gehalt des Regenwassers am Wasserstoffsperoxyd. p. 442-443.  
*Petermanns Mitteilungen. Gotha. 58. Jahrgang. August 1912.*  
**Peppler, Albert.** Zur Aerologie tropischer und subtropischer Ozeane. p. 69-71.  
*Weltall. Berlin. 12. Jahrgang. 2. August-Heft. 1912.*  
**Habenicht, H[ermann].** Die Ursache der Eiszeiten. p. 321-323.  
*Zeitschrift für Balneologie. Berlin. 5. Jahrgang. 15. September 1912.*  
**Lütgens, R[udolf].** Verdunstung, Luftfeuchtigkeit und Niederschläge auf dem Meere. p. 341-344.  
*Zeitschrift für Gewässerkunde. Dresden. 11. Band. Heft 3. [1912.]*  
**Gutzmann, Walther.** Der Wasserhaushalt der Lippe. p. 145-216. [Includes precipitation data and isohyetal chart of Lippe.]  
*Sociedad científica "Antonio Alzate." Memorias y revista. México. Tomo 30. Marzo, 1911.*  
**Descroix, Léon.** Climat de Paris. Les saints de glace au printemps. p. 105-109.  
*Arkiv för matematik, astronomi och fysik. Upsala. Band 7. Häfte 3-4. 1912.*  
**Sandström, J. W.** Über die Wirbelbewegungen in der Atmosphäre. No. 30. p. 1-33.  
**Stenquist, David.** The lightphenomena in the atmosphere, May, 1910. No. 36. p. 1-14.  
*Società geografica italiana. Bollettino. Roma. ser. 5. v. 1. Luglio 1912.*  
**Schiarini, Pompilio.** Il Dahomey. p. 717-734. [Climate, p. 723-724.]  
*Società degli spettroscopisti italiani. Memorie. Catania. v. 1. ser. 2. Ottobre 1912.*  
**Platana, G[iovanni].** Osservazioni dei punti neutri della polarizzazione atmosferica. p. 153-157.

## RECENT PAPERS BEARING ON METEOROLOGY.

C. FITZHUGH TALMAN, Junior Professor in Charge of Library.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers and other communications bearing on meteorology and cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled. It shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —.

Aeronautics. New York. v. 11. October, 1912.

**Henry, Alfred J.** The relative constancy of the wind above Mount Weather. p. 99-100.

American geographical society. Bulletin. New York. v. 44. September, 1912.

**Brown, Robert M.** The Mississippi River flood of 1912. p. 645-657.

Engineering news. New York. v. 68. September 26, 1912.

**Hess, A. E.** Notes on a costly Brazilian railway line. p. 578-583. [Includes notes on climate of western Matto Grosso.]

Geographical journal. London. v. 11. October, 1912.

**Huntington, Ellsworth.** The fluctuating climate of North America. p. 393-411.

International institute of agriculture. Bureau of agricultural intelligence and of plant diseases. Bulletin. Rome. 3d year. August, 1912.

**O'Connell, Mathew D.** The relation between climate and malaria. p. 1707. [Abstract.]**Brounov, P.** Some considerations on the organization of the agricultural meteorological service. p. 1713-1717. [Abstract.]

London, Edinburgh, and Dublin philosophical magazine. London. v. 24. October, 1912.

**McLennan, J. C.** On the relative intensities of the earth's penetrating radiation on land and sea. p. 520-527.**Smyth, Louis B.** On the supply of radium emanation from the soil to the atmosphere. p. 632-637.

**IMPORTANCE OF METEOROLOGICAL DATA IN ENGINEERING.**

[Read before the Engineers Club of Philadelphia, Pa., by Geo. S. Bliss, Section Director, Weather Bureau.]

The increasing use of meteorological data by the great industrial interests of the country during the last five or six years has been remarkable. The conduct of business with due regard to the effects of weather changes and of general climatological conditions is rapidly coming to be recognized as not only convenient but decidedly profitable. This is true to a greater or less extent in practically all lines of industrial activity, and much of the permanent benefits accrue through its application to certain classes of engineering work.

Our progress during the last decade in the development of hydroelectric power, in irrigation and drainage work, in the installation of adequate and efficient water-supply systems for the larger cities, and in the improvement of our waterways has been phenomenal, and it is apparent that we are entering upon an age of growth and development along all these lines such as the world has never known. No engineering scheme covering any phase of this work can be intelligently formulated unless full consideration is given to the meteorological conditions inherent in the locality.

The agricultural engineer, a combination of engineer and scientific agriculturist, is now coming into prominence in this country. The successful conduct of his work demands a continuous use of meteorological records as well as an intelligent application of many of the known laws of atmospheric physics. Thus in addition to being an engineer and a scientific agriculturist, he must be something of a meteorologist. In the mountainous portions of the country, and especially in the large fruit-growing districts, the matter of air drainage has become equally as important as that of water drainage.

The city engineer should take into account not only the average precipitation for his locality, but also the excessive rate of rainfall on unusual occasions, and should plan his drainage accordingly. The overflowing of water from the streets into basements and the bursting of sewers during heavy rains have frequently emphasized the need for more careful computations in these matters.

It used to be customary, in the construction of railroads and highways, to install such bridges and culverts as the judgment of the engineer dictated, and then later to build larger and more substantially at those points where washouts proved the inadequacy of the first structures. Much of this inconvenience and expense is now being avoided by an intelligent consideration of rainfall records in connection with the topography of the country.

The use of meteorological records by the engineering profession became so great that in 1909 the Chief of the United States Weather Bureau decided to compile and publish all data by drainage areas instead of by State boundaries as had formerly been done. Beginning with July of that year he divided the country into 12 districts, comprising the 12 principal drainage systems, and appointed a district editor in each to compile and summarize the records for publication. As now issued, the data for each drainage area comprises a separate of the National Monthly Weather Review. These separates may be obtained by interested persons upon request and without cost, while a subscription price is usually charged for the complete Review.

The launching of a great reclamation project requires first of all a careful estimate of the agricultural possibilities of the region in question, in order to determine what would be a reasonable expenditure in carrying out the work. This estimate must include several factors, chief of which pertains to the climatological features not only of the district which it is proposed to reclaim but of the drainage basin which is to furnish the water supply. It is especially important to determine with reasonable accuracy the run-off from the drainage basin during the driest and wettest years. The agricultural value of the reclaimed area will depend not merely upon its topography and the quality of its soil but also upon the usual conditions of temperature, wind, and sunshine, the rainfall in this case being of secondary importance. The average length of the growing season, or the average time between the last damaging frost of spring and the first of autumn, must be considered at all events.

Irrigation, drainage, and the development of hydroelectric power are often intimately associated by combining facilities for subsurface irrigation with those of tile drainage, and by installing power plants at the retaining dams of great irrigation systems. Tile drainage has been found to be almost as beneficial in dry seasons as in wet ones, and more land has been reclaimed by drainage than by irrigation. It may also be mentioned that in some places hydroelectric power is being used to pump or elevate water for irrigating purposes to points that would otherwise be inaccessible.

In addition to the large field, as outlined, in which the meteorological data are of prime importance, it may be suggested that the rainfall records offer an opportunity for the engineer to greatly enlarge his field of activities. A careful study of the rainfall records for the United States reveals the fact that there are few, if any, agricultural districts in which the rains are so dependable as to make irrigation unnecessary or unprofitable. Almost invariably there occurs a period during each growing season when the deficiency of moisture is such as to check the growth of vegetation. Irrigation at such times would greatly increase the production and might double or triple the yield, or even produce a good crop where practically all would otherwise have been lost. With the demands for produce rapidly outstripping the supply, more intensive methods of agriculture are becoming imperative in this country, and facilities for irrigation form the chief problem in this connection.

Many valleys offer opportunities to lead water from streams at the upper reaches and conduct it in flumes along the hillsides above the land to be irrigated. In other places it may be necessary to elevate the water by hydraulic power, and in still others wind power may be utilized for large pumping operations. All of these problems are for the engineer and in fostering and developing them he can make extensive use of the meteorological data that can be supplied by the United States Weather Bureau.

Data for a definite locality may often be unobtainable, but in this country they can usually be interpolated with sufficient accuracy from nearby points where records have been kept. An instance of how this can be done may be cited in the Los Angeles water project, which ranks among the greatest engineering feats that have been accomplished by municipalities. When it was proposed to bring water to Los Angeles from the Owens Valley, a distance of 200 miles over mountains and deserts, it

became necessary to ascertain the water resources of the valley. Old precipitation records were not available from a sufficient number of points to establish the average rainfall as well as the extremes for the valley, and to determine its relation to the run-off.

Rain gages were therefore located at numerous points and their catchment for several months was prorated with that of the permanent gages. The application of these ratios to the older records formed a satisfactory solution of the problem. The flow of the small mountain streams was also measured and it was found that seepage and evaporation are so great that only 15 per cent of the precipitation finally reaches the Owens River.

The United States Weather Bureau maintains something over 200 stations at which complete meteorological records are kept. In addition to this there are more than 4,000 cooperative stations equipped with standard thermometers and rain gages. Consequently there are few localities more than 75 to 100 miles from a regular Weather Bureau station, while temperature and precipitation records are available at one or more places in nearly every county.

At a majority of the stations the records cover periods of 10 years or more, and in nearly every State there are several points at which they have been kept for 30 years or upward. Usually a 10-year mean will vary less than 10 per cent from a 30-year mean, and 10 years of complete data may be depended upon to include the extremes except those rare occurrences which become matters of historic comment.

Copies of most of the records for the whole country are on file at all the larger Weather Bureau stations, but that

fact is not so generally known as it should be. Nearly every engineer who has visited the Philadelphia office has commented about the large amount of meteorological statistics available.

At present we are recording precipitation measurements at about 100 places in Pennsylvania, mostly in small towns along the railroads and in the valleys. It is my belief that the number of stations should be nearly doubled, the increase being distributed wherever possible over the higher ridges and the headwaters of the principal streams. Precipitation records are to become such an important factor in our industrial development of the near future that there is little danger of accumulating excessive or unnecessary data of this character.

The Weather Bureau data comprise not only the ordinary records of temperature, precipitation, wind, and sunshine, but also gage records of all the principal streams. These river gage records are indispensable in calculating the run-off for a given drainage area, or for determining its relation to the precipitation. During the last few years the bureau has maintained a large number of special snowfall stations in mountain districts of the far West, and thus reliable information is furnished regarding the reserve water supply for many power plants and irrigation operations.

In closing I wish to express my belief that in the future the hydroelectric and the agricultural engineers are to become the leaders of the profession, the opportunities of the agricultural engineers especially being practically unlimited, and their efficiency, in no small measure, depending upon their ability to make intelligent use of meteorological data.

## CONDENSED CLIMATOLOGICAL SUMMARY.

In the following table are given, for the various sections of the Climatological Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting the greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest

and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have 10 or more years of observations. Of course the number of such records is smaller than the total number of stations.

## CONDENSED CLIMATOLOGICAL SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS.

Temperature and precipitation by sections, September, 1912.

Section.	Temperature (°F.).						Precipitation (in inches and hundredths).					
	Section average.	Departure from the normal.	Monthly extremes.				Section average.	Departure from the normal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.	Station.	Amount.	Station.	Amount.
Alabama.....	77.1	+2.0	Wetumpka.....	103	4	Riverton.....	46	20†	4.79	+1.40	Robertsdale.....	12.38
Arizona.....	69.7	-3.7	Mohawk Summit.....	110	13	Flagstaff.....	11	22	0.32	-0.76	Naco.....	2.15
Arkansas.....	78.5	+1.0	Bee Branch.....	106	6†	2 stations.....	32	26†	2.40	-0.94	Brinkley.....	5.33
California.....	66.5	-2.0	Mammoth Tank.....	111	19†	2 stations.....	20	12†	1.65	+1.16	Stirling City.....	9.15
Colorado.....	51.2	-6.6	Lamar.....	97	8	Corona.....	8	21	1.31	-0.10	Corona.....	3.91
Florida.....	80.5	+1.4	Crescent City.....	103	3	2 stations.....	64	24†	9.54	+2.88	Cedar Key.....	28.14
Georgia.....	77.3	+2.5	4 stations.....	103	2†	Diamond.....	46	20	5.73	+2.04	Valona.....	12.95
Hawaii (August).....	74.7		3 stations.....	94		Humuula.....	34	29	3.57		Wahiawa Mtn.....	14.01
Idaho.....	52.4	-5.2	Dent.....	94	11	Pierson.....	10	8	0.96	-0.04	Kellogg.....	2.80
Illinois.....	67.0	+0.9	Carbondale.....	103	10	Lincoln.....	27	30	2.91	-0.62	Havana.....	5.78
Indiana.....	68.2	+1.3	Rome.....	101	5†	2 stations.....	29	30	3.31	+0.07	Huntingburg.....	5.79
Iowa.....	62.1	-1.6	Ottumwa.....	104	8	Bedford.....	24	26	3.98	+0.57	Audubon.....	10.12
Kansas.....	66.2	-2.7	Pratt.....	106	1	Republic.....	22	30	2.60	-0.31	Medicine Lodge.....	7.75
Kentucky.....	71.0	+0.5	Earlington.....	103	10	2 stations.....	33	27†	2.80	+0.22	Eubank.....	4.95
Louisiana.....	79.2	+1.8	Reserve.....	102	5	Laark.....	41	23	2.78	-1.07	Burrwood.....	17.60
Maryland & Delaware.....	69.3	+2.1	2 stations.....	102	6†	Deer Park, Md.....	30	28†	5.69	+2.13	Emmitsburg, Md.....	9.85
Michigan.....	61.7	+1.5	Allegan.....	98	9	Watersmeet.....	18	28	3.42	+0.56	South Haven.....	8.80
Minnesota.....	57.2	-0.9	3 stations.....	98	8	Roseau.....	15	29	2.99	-0.49	Warroad.....	6.42
Mississippi.....	77.5	+2.0	Charleston.....	102	8†	4 stations.....	46	27†	3.04	-0.54	Duck Hill.....	6.52
Missouri.....	68.6	-0.6	Bolivar.....	105	7†	Lamonte.....	27	26	3.06	-0.81	Mountaingrove.....	5.93
Montana.....	48.6	-7.1	Forsyth.....	95	2	Bowen.....	4	29	1.86	+0.54	Adel.....	4.72
Nebraska.....	59.3	-4.6	Ewing.....	105	1†	Curly.....	16	25	2.69	+0.42	Falls City.....	7.59
Nevada.....	56.6	-3.6	Logan.....	98	18	Geyser.....	8	20†	0.36	-0.05	Lewers Ranch.....	2.20
New England.....	59.2	-0.6	Waterbury, Conn.....	92	11	Patten, Me.....	25	30	3.20	-0.23	Bethlehem, N. H.....	6.12
New Jersey.....	65.9	+0.2	Vineland.....	97	8	Layton.....	28	30	4.47	+0.57	Sussex.....	6.76
New Mexico.....	60.6	-3.8	San Marcial.....	99	8	Elizabethtown.....	8	23	1.10	-0.72	Newman.....	4.20
New York.....	61.3	+0.4	Keene Valley.....	94	10	2 stations.....	25	30	4.07	+1.62	Newark Valley.....	8.82
North Carolina.....	73.7	+3.4	Reidsville.....	104	2	Transon.....	34	20	4.99	+1.15	Brewers.....	9.37
North Dakota.....	51.5	-5.0	Medora.....	124	3	2 stations.....	18	29	2.66	+1.13	Hannah.....	7.67
Ohio.....	67.4	+1.7	Cardington.....	99	5	Kenton.....	29	27	3.11	+0.48	Conneaut.....	7.91
Oklahoma.....	71.6	-2.0	2 stations.....	106	7†	Oakwood.....	27	26	2.00	-0.82	Alva.....	4.50
Oregon.....	57.1	-0.6	4 stations.....	93	12†	Crescent.....	13	25	1.37	-0.04	Deadwood.....	5.88
Pennsylvania.....	65.5	+1.8	Franklin.....	95	11	Lebanon.....	25	28	5.57	+2.46	Somerset.....	11.43
Porto Rico.....	78.5	-0.2	Canovanas.....	100	9	Maricao.....	55	12	7.25	-1.57	Isolina.....	16.08
South Carolina.....	77.7	+3.5	Saluda.....	109	1	Greenville.....	47	20	5.91	+1.95	Summerville.....	11.90
South Dakota.....	55.4	-5.0	2 stations.....	101	7†	Deadwood.....	14	25	1.89	-0.22	Greenmont.....	4.97
Tennessee.....	73.2	+2.4	Jackson.....	102	4†	Erasmus.....	37	20	3.29	+0.11	Erasmus.....	6.85
Texas.....	77.8	+0.7	Fort McIntosh.....	109	9	Tulia.....	30	26	1.52	-1.31	Clarendon.....	6.20
Utah.....	54.7	-6.3	Price.....	98	7	Woodruff.....	8	25	0.67	-0.31	Meadowville.....	2.40
Virginia.....	70.3	+2.4	Callaville.....	100	1	Hot Springs.....	26	30	5.38	+2.04	Mount Weather.....	10.20
Washington.....	57.4	-1.0	Wenatchee.....	93	12	2 stations.....	22	24	1.05	-0.70	Quinault.....	6.48
West Virginia.....	68.6	+2.2	2 stations.....	98	7†	Bayard.....	30	30	3.85	+1.02	Harpers Ferry.....	9.18
Wisconsin.....	60.2	+0.1	Racine.....	98	5	Long Lake No. 2.....	20	28	3.96	+0.66	Sturgeon Bay.....	8.52
Wyoming.....	45.8	-6.9	Moorcroft.....	95	3	Crazy Creek.....	7	29	2.25	+1.03	Woodrock.....	5.99
											Camp Hill.....	2.14
											15 stations.....	0.00
											Whitecliffs.....	0.33
											69 stations.....	0.00
											Terminal Dam.....	0.00
											Miami.....	2.08
											Resaca.....	2.00
											3 stations.....	0.00
											Glenns Ferry.....	0.10
											Pana.....	0.80
											Judyville.....	1.35
											Centerville.....	0.28
											Natoma.....	0.03
											Hopkinsville.....	1.20
											St. Francisville.....	0.38
											Princess Anne, Md.....	2.07
											Mackinaw.....	0.80
											St. Peter.....	0.95
											Port Gibson.....	0.23
											Wheatland.....	0.56
											Poplar.....	0.25
											Red Cloud.....	0.77
											8 stations.....	0.00
											Norfolk, Mass.....	0.78
											Imlaytown.....	2.68
											8 stations.....	0.00
											Southampton.....	1.51
											Willard.....	2.68
											Williston.....	0.89
											Thurman.....	1.06
											Durant.....	0.16
											2 stations.....	0.00
											Saegerstown.....	2.47
											Vieques.....	1.91
											Spartanburg.....	2.94
											Stephan.....	0.41
											Trenton.....	1.34
											7 stations.....	0.00
											Williamsburg.....	2.18
											Nutland.....	0.00
											New Cumberland.....	1.13
											Ashland.....	1.00
											Bechler River.....	0.21

† Other dates also.

TABLE I.—Climatological data for United States Weather Bureau stations, September, 1912.

Districts and stations.	Elevation of instruments.			Pressure in inches.			Temperature of the air, in degrees Fahrenheit.										Precipitation, inches.			Wind.				Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.								
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of the dew point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity.											
																							Miles per hour.				Direction.	Date.						
																													Clear days.	Partly cloudy days.	Cloudy days.			
New England.																																		
Eastport.....	76	67	85	29.97	30.05	+ .02	60.5	0.0	50.2	+ 1.0	78	15	63	36	30	50	25	52	49	82	2.63	- 0.5	12	6,136	nw.	39	ne.	20	8	12	10	5.9		
Greenville.....	1,070	6	117	28.91	30.07	+ .02	52.9		52.9		74	15	62	31	22	44	35	53	50	79	4.89		10	2,591	nw.	30	nw.	30	9	6	15	6.3		
Portland, Me.....	103	81	117	29.95	30.07	+ .02	58.1	- 1.5	58.1	- 1.5	84	8	66	39	30	50	25	53	50	79	2.91	- 0.3	12	2,591	nw.	30	nw.	30	9	6	15	6.3		
Concord.....	404	11	48	29.77	30.08	+ .01	58.8	- 0.3	58.8	- 0.3	83	15	69	36	26	48	25	53	50	79	3.14	- 0.1	12	2,591	nw.	32	ne.	26	5	9	16	6.6		
Burlington.....	876	12	60	29.93	30.08	+ .01	55.5	- 0.9	55.5	- 0.9	79	4	66	33	30	50	25	53	50	79	5.26	+ 1.9	18	4,325	s.	22	n.	27	4	9	17	7.3		
Northfield.....	125	115	188	29.94	30.08	+ .01	62.2	- 0.7	62.2	- 0.7	90	11	71	40	30	56	30	59	57	85	1.67	- 1.5	9	6,091	sw.	27	nw.	30	7	11	12	5.8		
Boston.....	12	14	90	30.06	30.07	+ .01	63.0	- 1.6	63.0	- 1.6	83	8	69	44	30	56	18	59	57	85	2.25	- 0.5	10	9,968	sw.	44	ne.	16	8	17	5	5.1		
Nantucket.....	26	11	46	30.04	30.07	+ .01	63.0	- 1.6	63.0	- 1.6	83	8	69	44	30	56	18	59	57	85	1.80	- 1.2	9	10,156	sw.	44	e.	2	11	2	17	6.3		
Block Island.....	9																																	
Narragansett.....	160	141	165	29.91	30.08	+ .01	62.6	- 0.6	62.6	- 0.6	88	11	71	37	30	54	29	58	56	82	1.87	- 1.3	12	5,624	nw.	34	nw.	30	8	12	10	5.8		
Providence.....	159	122	140	29.90	30.07	+ .00	63.4	+ 1.7	63.4	+ 1.7	87	11	72	37	29	55	29	58	55	79	2.14	- 1.4	15	3,965	s.	26	s.	18	6	8	16	7.1		
Hartford.....	160	122	140	29.90	30.07	+ .00	64.0	+ 1.7	64.0	+ 1.7	87	11	72	37	29	55	29	58	55	79	2.14	- 1.4	15	3,965	s.	26	s.	18	6	8	16	7.1		
New Haven.....	106	116	153	29.96	30.07	+ .00	64.0	+ 1.7	64.0	+ 1.7	87	11	72	37	29	55	29	58	55	79	2.14	- 1.4	15	3,965	s.	26	sw.	11	8	10	12	6.0		
Middle Atlantic States.																																		
Albany.....	97	102	115	29.95	30.05	- .02	63.2	+ 0.9	63.2	+ 0.9	83	11	71	36	30	55	26	58	55	79	3.01	- 0.2	16	4,645	s.	29	s.	18	8	9	13	6.1		
Binghamton.....	871	78	88	29.74	30.06	- .01	62.0	+ 2.0	62.0	+ 2.0	87	10	71	34	30	53	32	60	57	76	5.42	+ 2.6	16	2,980	e.	20	nw.	29	6	6	18	7.0		
New York.....	365	414	454	29.74	30.07	- .01	65.9	+ 0.6	65.9	+ 0.6	88	11	72	39	30	59	22	60	57	76	3.38	- 0.2	10	9,789	sw.	48	sw.	16	10	3	17	6.2		
Harrisburg.....	374	94	104	29.68	30.07	- .01	68.2	+ 3.3	68.2	+ 3.3	91	10	76	44	30	60	25	62	58	77	4.27	+ 1.4	13	4,090	e.	26	e.	24	10	9	11	5.4		
Philadelphia.....	117	123	184	29.95	30.07	- .01	68.8	+ 1.4	68.8	+ 1.4	91	10	76	43	30	62	23	62	59	77	5.62	+ 2.2	10	6,461	ne.	28	nw.	16	9	9	12	5.8		
Seranton.....	805	111	119	29.22	30.08	+ .01	63.8	+ 1.6	63.8	+ 1.6	89	10	73	36	30	55	31	59	57	83	6.94	+ 4.1	12	3,878	s.	28	n.	5	7	8	15	6.8		
Atlantic City.....	52	37	48	30.01	30.07	+ .00	68.4	+ 0.8	68.4	+ 0.8	91	6	74	42	30	63	25	63	61	80	4.14	+ 1.1	11	5,832	s.	28	s.	18	12	8	10	5.1		
Cape May.....	18	13	49	30.06	30.08	+ .03	69.2	+ 0.2	69.2	+ 0.2	92	6	75	44	30	63	23	64	62	83	3.84	+ 0.8	12	6,998	e.	34	se.	25	10	14	6	4.9		
Baltimore.....	123	100	113	29.94	30.06	- .02	70.6	+ 2.0	70.6	+ 2.0	94	6	78	46	30	63	24	64	61	76	8.75	+ 4.9	11	4,604	ne.	33	ne.	7	11	7	12	5.3		
Washington.....	112	62	85	29.94	30.06	- .02	70.4	+ 2.3	70.4	+ 2.3	94	11	79	42	30	62	33	64	62	82	5.86	+ 2.3	14	3,968	s.	32	nw.	7	10	5	15	5.8		
Lynchburg.....	681	83	88	29.31	30.05	- .03	72.0	+ 3.6	72.0	+ 3.6	96	3	82	47	30	62	33	65	62	79	6.98	+ 3.4	11	2,264	ne.	22	nw.	18	10	13	7	5.2		
Mount Weather.....	1,725	10	54	28.26	30.05	- .02	65.5	+ 3.1	65.5	+ 3.1	86	11	72	38	30	59	23	60	57	82	10.20	+ 7.4	12	9,564	se.	46	se.	24	11	8	11	5.2		
Norfolk.....	191	102	111	29.96	30.06	- .00	74.2	+ 2.5	74.2	+ 2.5	91	6	81	50	30	68	20	68	66	80	2.61	- 1.4	9	6,593	s.	30	s.	24	13	8	9	4.8		
Richmond.....	144	189	197	29.91	30.06	- .01	73.0	+ 2.2	73.0	+ 2.2	96	1	82	45	30	64	32	66	63	78	4.20	+ 0.8	9	4,819	ne.	33	se.	18	10	8	12	5.2		
Wytheville.....	2,293	40	47	27.73	30.06	- .01	66.7	+ 3.1	66.7	+ 3.1	88	7	77	42	20	57	35	60	59	87	4.84	+ 1.6	11	2,304	e.	15	w.	19	17	5	8	4.5		
South Atlantic States.																																		
Asheville.....	2,255	53	75	27.75	30.05	- .02	68.9	+ 3.7	68.9	+ 3.7	87	1	78	44	20	60	33	62	60	82	3.51	+ 0.5	11	4,616	nw.	28	n.	18	9	12	9	6.2		
Charlotte.....	773	68	76	29.22	30.04	- .03	75.0	+ 4.3	75.0	+ 4.3	96	2	84	55	30	66	25	67	65	79	3.50	+ 0.3	10	3,764	ne.	22	sw.	18	5	10	15	6.6		
Hatteras.....	11	12	47	30.02	30.03	- .03	77.4	+ 2.7	77.4	+ 2.7	91	2	82	61	30	73	16	72	70	82	2.74	+ 2.6	9	9,724	ne.	38	n.	30	7	16	7	5.2		
Manteo.....	12	12	46				74.9		74.9		93	7	81	56	30	68					5.97	+ 0.6	6		sw.				16	6	8			
Raleigh.....	376	103	110	29.65	30.04	- .03	75.4	+ 4.8	75.4	+ 4.8	99	1	84	53	30	67	25	67	65	79	3.20	+ 0.1	10	5,116	ne.	36	nw.	18	6	11	13	6.3		
Wilmington.....	78	81	91	29.94	30.02	- .03	76.4	+ 3.3	76.4	+ 3.3	96	1	83	55	30	70	20	72	70	87	4.14	- 1.1	16	4,818	ne.	30	s.	24	4	15	11	6.3		
Charleston.....	48	11	92	29.95	30.00	- .04	79.2	+ 3.0	79.2	+ 3.0	100	1	85	64	30	74	21	74	73	85	10.42	+ 5.0	14	7,591	e.	37	e.	5	6	7	17	6.8		
Columbia, S. C.....	351	41	57	29.64	30.02	- .03	77.7	+ 4.0	77.7	+ 4.0	99	1	86	58	30	70	26	70	68	81	5.98	+ 2.5	14	3,627	e.	25	e.	9	8	12	10	5.9		
Augusta.....	180	89	97	29.82	30.00	- .05	78.2	+ 3.8	78.2	+ 3.8	98	2	86	60	30	70	26	71	69	83	4.37	+ 0.7	16	3,918	ne.	22	se.	11	8	10	12	5.9		
Savannah.....	65	150	194	29.92	29.99	- .04	79.0	+ 3.6	79.0	+ 3.6	100	2	85	64	30	73	22	73	72	87	8.66	+ 3.1	18	6,866	se.	35	se.	10	3	10	17	7.6		
Jacksonville.....	43	96	129	29.94	29.99	- .01	81.0	+ 1.7	81.0	+ 1.7	99	3	88	69	5	74	21	75	74	89	7.69	- 0.3	12	5,767	se.	35	s.	6	9	9	12	5.8		
Florida Peninsula.																																		
Key West.....	22	10	53	29.93	29.95	+ .01	83.0	+ 0.5	83.0	+ 0.5	91	4	88	72	21	78	14	78	77	83	4.35	- 2.4	12	4,285	e.	26	se.	19	1	19	10	6.6		
Miami.....	25	37	72	29.96	29.98	+ .01	82.4	+ 0.9	82.4	+ 0.9	90	11	89	70	7	76	18	76	74	79	2.08	- 7.5	13	5,096	se.	25	e.	15	5	12	13	6.7		
Sand Key.....	23	39	72	29.92	29.95	+ .01	82.0		82.0		90	5	85	72	21	79	14	78	76	80	3.03		9	6,906	se.	32	ne.	4	4	18	8	6.4		
Tampa.....	35	79	96	29.93	29.96	- .01	80.8	+ 2.5	80.8	+ 2.5	96	4	88	70	10	74	21	75	74	87	18.93	+11.5	17	4,512	ne.	30	sw.	10	7	13	10	5.9		
Titusville.....	25	6		29.94	29.96	- .01	82.0	+ 3.0	82.0	+ 3.0	98	3	90	70	21	74	24				4.56		18		e.			13	6	11	5.5			
East Gulf States.																																		
Atlanta.....	1,170	190	216	28.80	30.01	- .04	75.3	+ 3.2	75.3	+ 3.2	93	1	85	58	30	68	21	68	66	80	3.52	- 0.0	13	6,437	ne.	32	w.	18	10	5	15	6.2		
Macon.....	370	78	87	29.60	29.96	- .04	77.6	+ 4.7	77.6	+ 4.7	97	4	83	60	20	70	25	72	70	85	5.22	+ 1.8	17	3,800	ne.	29								



TABLE I.—Climatological data for U. S. Weather Bureau stations, September, 1912—Continued.

Districts and stations.	Elevation of instruments.			Pressure in inches.			Temperature of the air, in degrees Fahrenheit.										Precipitation, inches.			Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Total snowfall.	Snow on ground at end of month.																	
	Barometer above sea level, feet.	Thermometer above ground.	Anemometer above ground.	Station, reduced to mean of 24 hours.	Sea level, reduced to mean of 24 hours.	Departure from normal.	Mean max. + mean min. + 2.	Departure from normal.	Maximum.	Date.	Mean minimum.	Date.	Mean minimum.	Greatest daily range.	Mean wet thermometer.	Mean temperature of dew point.	Mean relative humidity, per cent.	Total.	Departure from normal.	Days with 0.01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity.																								
																							Miles per hour.	Direction.							Date.																
Southern Slope.																														72.0 - 0.8			65			2.50 - 0.2						4.0					
Abilene.....	1,738	10	52	28.19	29.96	-.00	75.2	+ 1.0	98	24	87	40	26	63	34	61	53	54	0.18	- 3.0	3	6,962	s.	31	se.	19	12	13	5	4.3																	
Amarillo.....	3,676	10	49	26.31	30.00	-.04	64.6	- 3.1	92	2	76	36	26	53	35	55	50	70	2.28	- 0.1	6	8,573	sw.	40	n.	20	16	12	2	3.8																	
Del Rio.....	944	8	57	28.94	29.89	-.05	81.6	+ 2.7	103	12	94	50	25	69	34	57	52	70	4.89	+ 2.0	7	5,361	se.	35	w.	25	12	15	2	4.2																	
Roswell.....	3,578	9	57	26.38	29.95	+.03	66.4	- 3.9	91	8	80	38	26	53	42	57	52	70	2.67	+ 0.4	6	3,556	s.	24	ne.	24	15	10	5	3.9																	
Southern Plateau.																														67.9 - 2.6			39			0.40 - 0.5						1.8					
El Paso.....	3,762	110	133	26.17	29.86	-.02	71.0	- 1.7	91	19	82	50	26	60	34	56	45	48	1.77	+ 0.3	7	7,271	e.	34	w.	24	21	4	5	2.5																	
Sante Fe.....	7,013	8	56	23.30	29.89	-.04	58.1	- 2.5	77	2	70	32	25	46	33	44	30	42	0.08	- 1.6	3	6,007	se.	31	sw.	9	22	7	1	2.3																	
Flagstaff.....	6,907	8	57	26.31	29.89	-.04	58.1	- 2.5	77	2	70	32	25	46	33	44	30	42	0.08	- 1.6	3	6,007	se.	31	sw.	9	22	7	1	2.3																	
Phoenix.....	1,108	50	56	28.67	29.80	-.01	78.9	- 2.5	102	18	94	56	27	64	40	59	43	34	0.14	- 0.9	2	2,639	e.	20	se.	29	23	5	2	1.9																	
Yuma.....	141	9	58	29.64	29.78	-.00	81.4	- 2.5	108	19	99	56	5	64	44	62	49	40	0.00	- 0.2	0	3,580	ne.	22	n.	21	29	1	0	0.4																	
Independence.....	3,910	11	42	25.97	29.90	-.04	65.6	- 3.5	91	18	81	39	5	50	38	48	30	29	0.00	- 0.1	0	3,564	nw.	20	nw.	24	26	4	0	1.7																	
Middle Plateau.																														56.6 - 5.0			44			0.26 - 0.6						3.0					
Reno.....	4,532	56	63	25.48	29.95	-.00	58.4	- 1.3	89	19	75	35	25	42	43	45	34	47	0.39	+ 0.1	2	4,304	w.	35	w.	2	19	6	5	2.9																	
Tonopah.....	6,090	12	20	24.07	29.90	-.03	60.3	- 4.2	82	19	70	35	4	50	28	44	26	30	0.01	- 0.5	1	6,668	se.	40	nw.	3	21	8	1	2.6																	
Winnemucca.....	4,344	18	56	25.64	30.02	+.09	55.0	- 5.5	85	18	74	28	25	36	54	42	30	48	0.34	0.0	4	3,905	ne.	24	sw.	2	18	5	7	3.2																	
Modena.....	5,479	10	43	24.64	29.95	+.03	54.4	- 5.8	84	19	71	24	22	38	51	41	25	39	0.06	- 1.1	1	7,967	w.	49	sw.	3	22	5	3	2.8																	
Salt Lake City.....	4,360	147	189	25.64	29.99	+.04	58.0	- 7.1	83	2	68	36	21	48	34	46	37	50	0.97	+ 0.1	6	5,520	nw.	32	se.	2	20	5	5	3.6																	
Durango.....	6,546	18	56	23.69	29.93	-.00	54.0	- 4.2	77	11	71	24	22	37	45	42	32	52	0.04	- 1.8	3	4,196	nw.	27	s.	8	14	15	1	3.0																	
Grand Junction.....	4,602	43	51	25.39	29.95	-.00	60.1	- 6.3	86	2	74	33	15	46	39	45	33	41	0.03	- 0.9	2	3,634	se.	26	s.	4	21	6	3	2.9																	
Northern Plateau.																														56.7 - 4.6			53			0.74 - 0.0						4.1					
Baker.....	3,466	48	53	26.50	30.09	+ .10	52.0	- 5.0	80	18	66	26	25	37	41	42	33	53	0.32	- 0.4	3	4,630	se.	21	n.	23	18	6	6	3.1																	
Boise.....	2,739	78	86	27.19	30.04	+ .07	57.7	- 4.2	85	30	70	37	24	45	38	46	34	46	0.77	+ 0.4	3	3,888	nw.	28	nw.	23	17	6	7	3.8																	
Lewiston.....	757	10	51	29.24	30.05	+ .07	59.6	- 3.9	83	13	74	38	21	45	39	40	43	34	0.98	+ 0.3	4	2,969	e.	55	w.	30	16	6	8	4.1																	
Pocatello.....	4,477	46	54	25.52	30.03	+ .07	52.4	- 3.8	79	30	66	26	21	39	40	43	34	56	0.92	0.0	7	5,189	se.	35	sw.	3	12	11	7	4.8																	
Spokane.....	1,929	101	110	28.02	30.06	+ .08	56.6	- 2.8	80	12	68	35	21	44	38	47	38	58	0.84	- 0.2	6	3,315	n.	25	sw.	7	14	6	10	4.5																	
Walla Walla.....	1,045	107	115	30.03	30.03	+.03	62.3	- 3.1	85	12	74	44	27	51	34	44	48	48	0.61	- 0.3	5	4,295	s.	26	sw.	30	21	3	6	4.1																	
North Pacific Coast Region.																														58.2 + 1.3			76			1.74 - 0.6						4.9					
North Head.....	211	11	56	29.81	30.03	+.00	58.4	+ 2.2	81	10	63	48	3	54	23	55	53	86	2.10	+ 0.2	10	10,333	nw.	64	se.	30	11	8	11	5.1																	
Port Crescent.....	259	8	53	29.78	30.07	+ .05	52.4	- 0.1	78	13	62	34	24	43	32	55	49	74	1.49	- 0.8	7	3,642	s.	17	e.	14	9	13	8	5.2																	
Seattle.....	205	215	250	29.93	30.06	+ .05	59.2	+ 1.3	80	15	67	42	24	51	25	53	49	74	0.73	- 1.2	5	5,364	n.	31	s.	30	12	6	12	5.3																	
Tacoma.....	213	113	120	29.83	30.05	+ .03	58.1	+ 0.5	78	15	67	42	24	49	30	52	47	71	1.38	- 1.1	6	3,843	n.	31	ne.	19	11	11	8	5.0																	
Tatoosh Island.....	109	7	57	29.93	30.02	+ .01	56.1	+ 3.1	76	14	61	46	24	51	22	53	51	85	3.34	- 2.8	7	10,207	ne.	60	s.	30	12	10	8	4.8																	
Portland, Oreg.....	153	68	106	29.85	30.01	-.02	62.2	+ 1.6	84	11	72	42	24	52	30	56	52	72	1.18	- 0.7	7	4,264	nw.	28	e.	14	12	7	11	4.9																	
Roseburg.....	510	9	57	29.45	30.00	-.02	61.1	+ 0.6	88	14	74	39	25	48	41	54	48	69	1.99	+ 1.0	9	1,733	nw.	19	sw.	30	13	11	6	4.0																	
Middle Pacific Coast Region.																														64.0 + 0.6			68			1.97 + 0.8						3.8					
Eureka.....	80	73	89	29.93	30.00	-.01	57.2	+ 2.3	71	10	63	46	24	51	19	54	53	90	2.40	+ 1.3	7	3,223	se.	27	se.	5	9	8	13	6.0																	
Mount Tamalpais.....	2,375	11	18	27.53	29.97	+ .03	63.7	- 2.4	87	18	70	45	3	58	17	52	44	58	2.35	+ 1.7	6	12,145	nw.	74	nw.	1	20	4	6	3.0																	
Point Reyes Light.....	490	7	18	29.42	29.94	-.05	58.0	+ 1.9	85	18	63	48	25	53	27	53	49	74	1.91	.....	4	12,227	nw.	64	nw.	30	12	4	14	5.8																	
Red Bluff.....	332	50	56	29.56	29.91	-.03	70.6	- 3.3	99	18	83	48	4	58	40	58	49	53	4.12	+ 3.3	3	3,366	nw.	24	nw.	24	21	4	5	2.5																	
Sacramento.....	69	106	117	29.84	29.91	+ .02	69.5	+ 0.4	95	18	82	52	5	57	36	60	54	63	1.25	+ 0.9	4	5,016	s.	30	s.	1	24	5	1	1.5																	
San Francisco.....	155	200	204	29.79	29.96	+ .02	63.4	+ 4.1	94	18	70	52	25	56	27	56	52	76	1.25	+ 1.0	4	5,951	w.	28	w.	26	15	9	6	3.7																	
San Jose.....	141	12	110	29.82	29.97	-.05	65.7	+ 1.0	99	18	79	46	5	52	41	.....	.....	.....	0.71	- 3.7	4	3,970	nw.	21	nw.	2	20	8	2	2.7																	
Southeast Farallon.....	30	9	17	29.95	29.98	.....	57.9	.....	79	18	60	52	25	55	21	.....	.....	.....	1.74	+ 1.4	4	7,605	nw.	46	nw.	30	10	9	11	5.3																	
South Pacific Coast Region.																														68.0 + 0.8			67			0.04 - 0.2						2.6					
Fresno.....	330	62	70	29.55	29.90	+ .03	73.2	- 1.1	98	13	88	49	5	58	37	57	45	44	0.10	- 0.2	1	3,890	nw.	24	w.	3	22	7	1	1.5																	
Los Angeles.....	338	159	191	29.54	29.91	+ .03	68.7	+ 2.2	100	19	79	54	13	58	38	59	55	72	0.00	- 0.1	0	3,525	sw.	22	s.	3	20	9	1	2.6																	
San Diego.....	87	94	102	29.82	29.91	+ .02	65.8	- 1.1	86	19	72	54	5	60	22	61	59	83	0.00	- 0.1	0	4,184	nw.	24	nw.	19	19	11	0	2.6																	
San Luis Obispo.....	201	47	54	29.74	29.95	+.02	64.5	+ 3.0	94	17	77	42	5	52	46	56	51	69	0.04	- 0.4	2	3,600	nw.	22	nw.	4	19	6	5	3.6																	
West Indies.																																															
San Juan.....	82	48	90	29.87	29.95	+ .01	81.0	.....	94	9	87	69	15	75	17	.....	.....	.....	4.12	- 2.7	13	4,904	se.	29	e.	14	4	22	4	5.1																	
Panama.																																															
Ancon.....	92	6	69	29.73	29.82	.....	74.9	.....	92	9	87	68	24	72	20	75	74	91	8.38	+ 0.9	20	4,451	w.	31	ne.	23	0	14	16	7.6																	
Culebra.....	404	5	62	29.42	29.84	.....	78.7	.....	90	1	86	67	24	72	21	74	73	93	14.12	+ 2.9	20	3,975	nw.	32	ne.	23	1																				

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for the principal storms in which the rate of fall equaled or exceeded 0.25 inch in any 5 minutes, or 0.80 in 1 hour, during September, 1912, at all stations furnished with self-registering gages.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.														
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.	
Abilene, Tex.	14			0.15															.13			
Albany, N. Y.	15			0.67															.41			
Alpena, Mich.	9	12.20 a. m.	1.40 a. m.	0.51	1.26 a. m.	1.49 a. m.	.02	.09	.13	.26	.41	.46										
Amarillo, Tex.	14			0.36																		
Annapolis, Ala.	22-23	Noon.	9.00 a. m.	2.03	2.27 p. m.	3.40 p. m.	.26	.12	.24	.37	.50	.62	.77	.85	.91	.96	1.00	1.30	1.40			
Asheville, N. C.	26	12.50 p. m.	3.10 p. m.	0.88	2.06 p. m.	2.25 p. m.	.16	.17	.50	.59	.68											
Atlanta, Ga.	15	12.17 p. m.	12.50 p. m.	0.81	12.17 p. m.	12.48 p. m.	.00	.20	.42	.56	.67	.75	.80	.81								
Atlantic City, N. J.	27	6.42 p. m.	8.15 p. m.	1.03	6.42 p. m.	7.11 p. m.	.00	.16	.25	.37	.54	.79	.93									
Augusta, Ga.	1-2	9.36 p. m.	D. N. a. m.	0.62	10.10 p. m.	10.29 p. m.	.01	.11	.22	.36	.44											
Baker, Oreg.	27	12.55 p. m.	5.00 p. m.	0.90	1.56 p. m.	2.16 p. m.	.22	.17	.36	.43	.48											
Baltimore, Md.	7			0.29															.10			
Do.	7	5.35 p. m.	7.00 p. m.	0.72	6.14 p. m.	6.32 p. m.	.25	.15	.33	.42	.46											
Bentonville, Ark.	24-25	D. N. a. m.	9.15 a. m.	6.18	11.46 a. m.	1.13 p. m.	2.19	.06	.12	.23	.36	.45	.54	.58	.65	.72	.81	1.00	1.29	1.44		
Binghamton, N. Y.	17			1.70														.44				
Birmingham, Ala.	1	7.40 a. m.	11.00 a. m.	1.12	8.03 a. m.	8.18 a. m.	.03	.17	.51	.74												
Bismarck, N. Dak.	15			1.30															.46			
Block Island, R. I.	12			0.45															.32			
Boise, Idaho.	29			0.52															.46			
Boston, Mass.	7			0.25															.16			
Buffalo, N. Y.	16			0.77															.36			
Burlington, Vt.	1	5.10 a. m.	7.35 a. m.	0.55	5.48 a. m.	6.08 a. m.	.08	.19	.31	.38	.43											
Cairo, Ill.	7	9.50 a. m.	11.10 a. m.	0.92	9.55 a. m.	10.11 a. m.	.01	.24	.47	.65	.68											
Canton, N. Y.	17	10.25 a. m.	11.12 a. m.	0.59	10.25 a. m.	10.46 a. m.	.00	(*)	(*)	(*)	.56	.57										
Charles City, Iowa.	11			0.36															.24			
Charleston, S. C.	2			0.31															.28			
Do.	4	11.50 a. m.	1.35 p. m.	0.70	1.02 p. m.	1.20 p. m.	.05	.14	.29	.51	.64											
Do.	5	4.30 p. m.	9.05 p. m.	1.55	4.35 p. m.	5.09 p. m.	.03	.11	.36	.38	.39	.48	.71	.79								
Do.	10	9.40 a. m.	5.45 p. m.	3.99	9.54 a. m.	10.58 a. m.	.01	.19	.43	.44	.45	.49	.50	.56	.82	1.24	1.60	2.30	2.43			
Do.	11	3.20 p. m.	9.30 p. m.	1.31	4.32 p. m.	5.14 p. m.	0.12	.07	.13	.18	.32	.50	.62	.72	.87	.95						
Do.	19	3.48 p. m.	5.30 p. m.	0.79	4.32 p. m.	4.52 p. m.	0.06	.17	.40	.57	.72											
Charlotte, N. C.	22-23	4.11 p. m.	5.10 p. m.	1.78	12.22 p. m.	12.33 p. m.	1.28	.17	.36	.41												
Chattanooga, Tenn.	18			0.98															.68			
Cheyenne, Wyo.	12			0.86															.44			
Chicago, Ill.	2	2.28 p. m.	3.54 p. m.	1.47	2.39 p. m.	3.19 p. m.	.03	.12	.40	.57	.70	.84	.90	1.21	1.41							
Cincinnati, Ohio.	22			0.81															.40			
Cleveland, Ohio.	22			0.94															.48			
Columbia, Mo.	14	5.50 p. m.	7.55 p. m.	1.21	6.45 p. m.	7.18 p. m.	.33	.17	.29	.37	.51	.63	.73	.85								
Columbia, S. C.	23-24	5.05 p. m.	6.35 a. m.	3.26	10.03 p. m.	11.55 p. m.	.62	.08	.16	.32	.52	.74	.80	1.02	1.03	1.04	1.04	1.24	1.56	2.13	2.34	
Columbus, Ohio.	7			0.59															.25			
Concord, N. H.	15-16	5.20 p. m.	D. N. a. m.	1.21	9.16 p. m.	9.28 p. m.	.67	.06	.24	.37												
Concordia, Kans.	10			0.94															.52			
Corpus Christi, Tex.	29			1.03															.60			
Davenport, Iowa.	14			1.25															.75			
Dayton, Ohio.	22			1.19															.70			
Del Rio, Tex.	20-21	10.50 p. m.	3.45 a. m.	0.64	10.53 p. m.	11.23 p. m.	.01	.08	.14	.21	.30	.40	.50									
Denver, Colo.	9			0.48															.39			
Des Moines, Iowa.	1-2	9.45 p. m.	8.15 a. m.	1.78	2.02 a. m.	2.41 a. m.	.47	.08	.18	.27	.43	.50	.51	.64	.70							
Detroit, Mich.	5	2.55 p. m.	4.15 p. m.	0.84	2.55 p. m.	3.20 p. m.	.00	.27	.55	.70	.77	.82										
Devils Lake, N. Dak.	20			0.47															.12			
Dodge City, Kans.	17	D. N. a. m.	D. N. a. m.	0.63	4.28 a. m.	4.39 a. m.	.17	.16	.41	.45												
Dubuque, Iowa.	1			0.83															.46			
Duluth, Minn.	8			0.22															.22			
Durango, Colo.	2			0.02															.02			
Eastport, Me.	20			0.42															.18			
Elkins, W. Va.	24	8.40 a. m.	7.12 p. m.	1.08	3.09 p. m.	3.31 p. m.	.06	.05	.17	.44	.64	.67										
El Paso, Tex.	11			1.02															.30			
Erie, Pa.	2			1.00															.66			
Escanaba, Mich.	5	5.10 a. m.	7.50 a. m.	1.45	6.22 a. m.	7.00 a. m.	.58	.07	.16	.26	.45	.64	.72	.82	.86							
Eureka, Cal.	2			0.39															.29			
Evansville, Ind.	25	4.10 p. m.	6.30 p. m.	0.62	4.17 p. m.	4.32 p. m.	.01	.07	.38	.46												
Flagstaff, Ariz.	4			0.05															(*)			
Fort Smith, Ark.	20-21	7.45 p. m.	6.25 a. m.	1.29	7.49 p. m.	7.58 p. m.	.01	.21	.30													
Fort Wayne, Ind.	7	12.10 p. m.	1.15 p. m.	0.60	12.15 p. m.	12.30 p. m.	.02	.14	.35	.47												
Fort Worth, Tex.	17	10.13 p. m.	11.55 p. m.	0.73	10.43 p. m.	10.53 p. m.	.07	.22	.35													
Fresno, Cal.	3			0.10															.06			
Galveston, Tex.	16			0.41															.40			
Grand Haven, Mich.	15	D. N. a. m.	8.50 a. m.	0.65	5.39 a. m.	5.53 a. m.	.05	.09	.40	.45												
Grand Junction, Colo.	14			0.02															.02			
Grand Rapids, Mich.	15	1.00 a. m.	9.00 a. m.	1.23	5.36 a. m.	6.16 a. m.	.16	.15	.18	.22	.25	.28	.51	.62	.67							
Do.	2	1.45 a. m.	4.55 a. m.	0.65	3.58 a. m.	4.14 a. m.	.11	.08	.19	.45	.51											
Green Bay, Wis.	5	D. N. a. m.	6.30 a. m.	0.83	5.47 a. m.	6.21 a. m.	.16	.13	.29	.35	.50	.55	.63	.67								
Hannibal, Mo.	14	</																				

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms, etc.—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.													
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.
Lewiston, Idaho.	2			0.39																	
Lexington, Ky.	3	1.54 p. m.	2.44 p. m.	0.64	2.04 p. m.	2.22 p. m.	.01	.10	.22	.50	.59							.21			
Lincoln, Nebr.	9			0.71																	
Little Rock, Ark.	25	12.02 p. m.	5.10 p. m.	1.90	1.29 p. m.	2.00 p. m.	.75	.07	.20	.55	.65	.73	.86	.88				.32			
Los Angeles, Cal.	(1)																				
Louisville, Ky.	3	2.27 p. m.	3.48 p. m.	0.75	2.27 p. m.	2.57 p. m.	.00	.07	.24	.39	.41	.61	.71								
Lynchburg, Va.	18	6.40 a. m.	8.10 a. m.	0.68	6.54 a. m.	7.11 a. m.	.01	.26	.41	.51	.57										
	18	3.15 p. m.	4.30 p. m.	0.69	3.27 p. m.	3.48 p. m.	.01	.28	.28	.36	.59	.63									
Macon, Ga.	4			0.68																	
Madison, Wis.	18-19	12.50 p. m.	D. N. a. m.	2.70	1.02 p. m.	1.30 p. m.	.02	.19	.28	.35	.45	.55	.59					.59			
Marquette, Mich.	21			0.88																	
Memphis, Tenn.	21			0.90														.24			
Meridian, Miss.	14-15			1.61														.32			
Miami, Fla.	7			0.40														.50			
																		.40			
Milwaukee, Wis.	14-15	11.15 p. m.	6.15 a. m.	3.08	2.01 a. m.	2.51 a. m.	.76	.13	.19	.23	.27	.32	.40	.49	.57	.65	.74				
					2.51 a. m.	3.41 a. m.		.76	.79	.90	1.00	1.14	1.23	1.26	1.30	1.37	1.43				
					3.41 a. m.	4.29 a. m.		1.46	1.47	1.52	1.60	1.66	1.71	1.77	1.83	1.87	1.92				
Minneapolis, Minn.	19-20			0.24																	
Mobile, Ala.	13-14	7.30 p. m.	D. N. a. m.	1.30	12.13 a. m.	12.39 a. m.	.20	.11	.16	.26	.34	.46	.50					.23			
Do.	14	1.20 p. m.	3.30 p. m.	0.90	2.37 p. m.	2.56 p. m.	.25	.12	.22	.39	.65										
Do.	18	3.16 p. m.	4.50 p. m.	0.80	3.24 p. m.	3.41 p. m.	.02	.15	.45	.67	.72										
Modena, Utah.	8			0.06																	
Montgomery, Ala.	5	5.19 p. m.	5.40 p. m.	0.69	5.19 p. m.	5.33 p. m.	.00	.08	.37	.68								.06			
Do.	6	7.45 p. m.	8.30 p. m.	0.52	7.45 p. m.	7.57 p. m.	.00	.15	.47	.52											
Do.	14	7.01 a. m.	2.35 p. m.	0.89	7.26 a. m.	7.41 a. m.	.01	.34	.42	.52											
Do.	18	12.02 p. m.	12.37 p. m.	0.90	12.18 p. m.	12.37 p. m.	.02	.44	.60	.82	.88										
Do.	22	7.05 a. m.	8.25 p. m.	1.63	2.34 p. m.	3.11 p. m.	.28	.10	.42	.71	.84	.87	.93	1.00	1.06						
Moorhead, Minn.	19			0.64																	
Mount Tamalpais, Cal.	6			1.85														.50			
	2	4.33 p. m.	5.25 p. m.	0.88	4.43 p. m.	4.59 p. m.	.06	.26	.37	.78	.81							.39			
Mount Weather, Va.	23-25	D. N. a. m.	10.10 a. m.	7.10	11.10 a. m.	12.21 p. m.	4.38	.06	.12	.18	.33	.43	.53	.70	.85	.95	.99	1.12	1.26		
Nantucket, Mass.	11-12	3.25 p. m.	2.25 a. m.	0.87	4.08 p. m.	4.16 p. m.	.01	.16	.32												
Nashville, Tenn.	17			0.51																	
New Haven, Conn.	15-16			0.64														.27			
	20	2.25 p. m.	4.10 p. m.	1.12	2.30 p. m.	3.11 p. m.	.01	.09	.21	.42	.52	.67	.82	.95	1.08	1.11		.54			
New Orleans, La.	29	7.05 a. m.	6.20 p. m.	1.75	1.18 p. m.	1.48 p. m.	.27	.13	.23	.38	.44	.49	.54								
New York, N. Y.	15-16			0.59																	
Norfolk, Va.	18	5.35 p. m.	8.15 p. m.	1.33	5.46 p. m.	6.39 p. m.	.01	.15	.28	.41	.52	.56	.61	.68	.77	.96	1.14	1.20			
Northfield, Vt.	15-16	1.30 p. m.	D. N. a. m.	1.34	6.28 p. m.	6.49 p. m.	.29	.11	.24	.44	.53	.56									
North Head, Wash.	7			0.98																	
North Platte, Nebr.	12-13	10.40 p. m.	1.40 a. m.	0.78	11.44 p. m.	11.59 p. m.	.08	.20	.39	.47	.50	.63	.75	.95	1.01	1.09	1.12	1.51			
Notre Dame, Ind.	15	D. N. a. m.	8.30 a. m.	2.07	4.08 a. m.	5.27 a. m.	.05	.08	.16	.28	.42	.50	.63	.75	.95	1.01	1.09	1.12	1.51		
	12	7.15 p. m.	8.40 p. m.	0.82	7.30 p. m.	8.21 p. m.	.02	.10	.16	.25	.32	.35	.37	.43	.58	.71	.75	.80			
Oklahoma, Okla.	14	10.05 a. m.	11.20 a. m.	0.57	10.17 a. m.	10.45 a. m.	.02	.05	.16	.23	.35	.46	.51								
Omaha, Nebr.	9-10	7.25 p. m.	6.35 a. m.	2.34	3.46 a. m.	4.26 a. m.	1.06	.08	.15	.24	.40	.44	.48	.54	.62	.78					
Oswego, N. Y.	5	9.47 p. m.	10.45 p. m.	0.82	9.35 p. m.	10.37 p. m.	.02	.06	.28	.38	.47	.53	.54	.61							
Palestine, Tex.	20	10.20 p. m.	11.11 p. m.	0.74	10.30 p. m.	10.45 p. m.	.01	.36	.58	.68											
Parkersburg, W. Va.	18			0.37																	
Pensacola, Fla.	21	noon.	6.25 p. m.	2.02	1.18 p. m.	1.56 p. m.	.36	.12†	.26†	.36†	.51†	.63†	.71†	.76†	.81†			.19			
	26	D. N. a. m.	6.15 a. m.	0.65	4.50 a. m.	5.00 a. m.	.05	.22	.48												
Peoria, Ill.	14-15	D. N. p. m.	5.00 a. m.	1.43	12.36 a. m.	1.08 a. m.	.19	.06	.11	.23	.52	.67	.99	1.08							
Philadelphia, Pa.	1	8.25 p. m.	10.53 p. m.	0.72	10.08 p. m.	10.18 p. m.	.30	.13	.35												
Phoenix, Ariz.	1			0.12																	
Pierre, S. Dak.	12			0.30																	
Pittsburgh, Pa.	1-2	8.52 p. m.	2.45 a. m.	1.16	8.52 p. m.	9.33 p. m.	.00	.12	.16	.24	.31	.38	.45	.55	.73	.77		.11			
	6	4.30 a. m.	5.30 a. m.	0.58	4.35 a. m.	4.51 a. m.	.01	.32	.45	.53	.56							.30			
Pocatello, Idaho.	9			0.34																	
Point Reyes Light, Cal.	5			1.02																	
Port Huron, Mich.	22			1.05														.14			
Portland, Me.	20	1.00 a. m.	4.50 a. m.	0.74	3.09 a. m.	3.21 a. m.	.10	.15	.35	.42								.37			
Portland, Oreg.	2			0.64														.39			
Providence, R. I.	11	3.08 p. m.	7.30 p. m.	0.87	3.21 p. m.	3.37 p. m.	.03	.21	.41	.58	.60							.12			
Pueblo, Colo.	14			0.38																	
Raleigh, N. C.	18	3.07 p. m.	4.10 p. m.	0.48	3.16 p. m.	3.29 p. m.	.03	.13	.27	.39								.06			
Rapid City, S. Dak.	9			0.13																	
Red Bluff, Cal.	5-6	2.05 p. m.	1.39 p. m.	3.90	8.06 p. m.	8.51 p. m.	1.08	.07	.17	.25	.34	.45	.49	.59	.70	.76		.08			
Reno, Nev.	6			0.38																	
Richmond, Va.	18	8.54 a. m.	10.25 a. m.	0.40	8.54 a. m.	9.01 a. m.	.00	.25	.30									.20			
Rochester, N. Y.	2	1.17 p. m.	2.17 p. m.	0.46	1.24 p. m.	1.39 p. m.	.01	.12	.26	.43											

TABLE II.—Accumulated amounts of precipitation for each 5 minutes, for storms, etc.—Continued.

Stations.	Date.	Total duration.		Total amount of precipitation.	Excessive rate.		Amount before excessive rate began.	Depths of precipitation (in inches) during periods of time indicated.														
		From—	To—		Began—	Ended—		5 min.	10 min.	15 min.	20 min.	25 min.	30 min.	35 min.	40 min.	45 min.	50 min.	60 min.	80 min.	100 min.	120 min.	
Tampa, Fla. ....	5	11.49 a. m.	2.15 p. m.	1.04	12.23 p. m.	1.06 p. m.	.08	.14	.22	.45	.55	.58	.61	.74	.87	.92						
Do. ....	7-8	9.00 p. m.	7.05 a. m.	4.03	10.33 p. m.	10.59 p. m.	.35	.12	.24	.40	.58	.63	.64									
Do. ....					11.34 p. m.	11.59 p. m.	1.00	.06	.27	.47	.57	.63										
Do. ....					1.28 a. m.	1.59 a. m.	1.72	.20	.53	.70	.87	.99	1.09	1.14								
Do. ....	8-9	12.45 p. m.	8.50 a. m.	3.74	5.19 p. m.	5.34 p. m.	.87	.30	.42	.48												
Do. ....	10	D. N. a. m.	4.50 p. m.	4.54	3.54 a. m.	5.39 a. m.	.89	.13	.33	.55	.79	.82	.96	1.06	1.15	1.18	1.20	1.45	1.88	2.60	2.82	
Do. ....	20	3.48 p. m.	7.30 p. m.	2.12	3.50 p. m.	4.50 p. m.	.01	.38	.70	.94	1.17	1.28	1.38	1.53	1.59	1.65	1.68	1.81				
Tatoosh Island, Wash. ....	1			1.12														.26				
Taylor, Tex. ....	20			0.04														.03				
Thomasville, Ga. ....	5	3.22 p. m.	3.45 p. m.	0.44	3.28 p. m.	3.36 p. m.	T.	.24	.44													
Do. ....	22-23	8.35 a. m.	12.07 p. m.	4.72	6.18 p. m.	6.56 p. m.	1.13	.13	.16	.21	.43	.61	.72	.88	.94							
					10.41 a. m.	11.18 a. m.	3.75	.14	.23	.31	.47	.65	.72	.80	.84							
Toledo, Ohio. ....	22			1.27														.46				
Tonopah, Nev. ....	3			0.01														.01				
Topeka, Kans. ....	2	2.22 p. m.	6.50 p. m.	0.65	2.25 p. m.	2.45 p. m.	.02	.17	.33	.43	.51											
Valentine, Nebr. ....	10			0.65														.18				
Vicksburg, Miss. ....	15			0.13														.12				
Walla Walla, Wash. ....	30			0.36														*				
Washington, D. C. ....	7	7.28 p. m.	10.05 p. m.	1.75	7.33 p. m.	8.15 p. m.	.01	.08	.24	.58	1.05	1.27	1.39	1.49	1.57	1.63						
Wichita, Kans. ....	14	8.15 a. m.	12.45 p. m.	1.34	10.48 a. m.	11.41 a. m.	.36	.11	.31	.33	.36	.36	.36	.42	.52	.61	.77	.87				
Williston, N. Dak. ....	13			0.18														.07				
Wilmington, N. C. ....	19	2.55 p. m.	5.10 p. m.	0.59	2.58 p. m.	3.14 p. m.	.01	.27	.41	.47	.49											
Winnemucca, Nev. ....	23	2.35 p. m.	4.35 p. m.	0.62	3.48 p. m.	4.11 p. m.	.06	.14	.26	.41	.49	.56										
	6			0.18														.09				
Wytheville, Va. ....	18	3.40 a. m.	5.35 a. m.	0.74	4.22 a. m.	4.42 a. m.	.05	.13	.31	.42	.56											
Do. ....	18	11.32 a. m.	2.55 p. m.	0.59	11.50 a. m.	12.14 p. m.	.06	.11	.30	.42	.66	.75										
Yankton, S. Dak. ....	5	4.50 p. m.	5.30 p. m.	0.59	4.55 p. m.	5.17 p. m.	.01	.13	.28	.39	.53	.57										
Yellowstone Park, Wyo. ....	22-23			0.43														*				

\* Self-register not working.

† Record incomplete.

‡ No precipitation occurred during month.



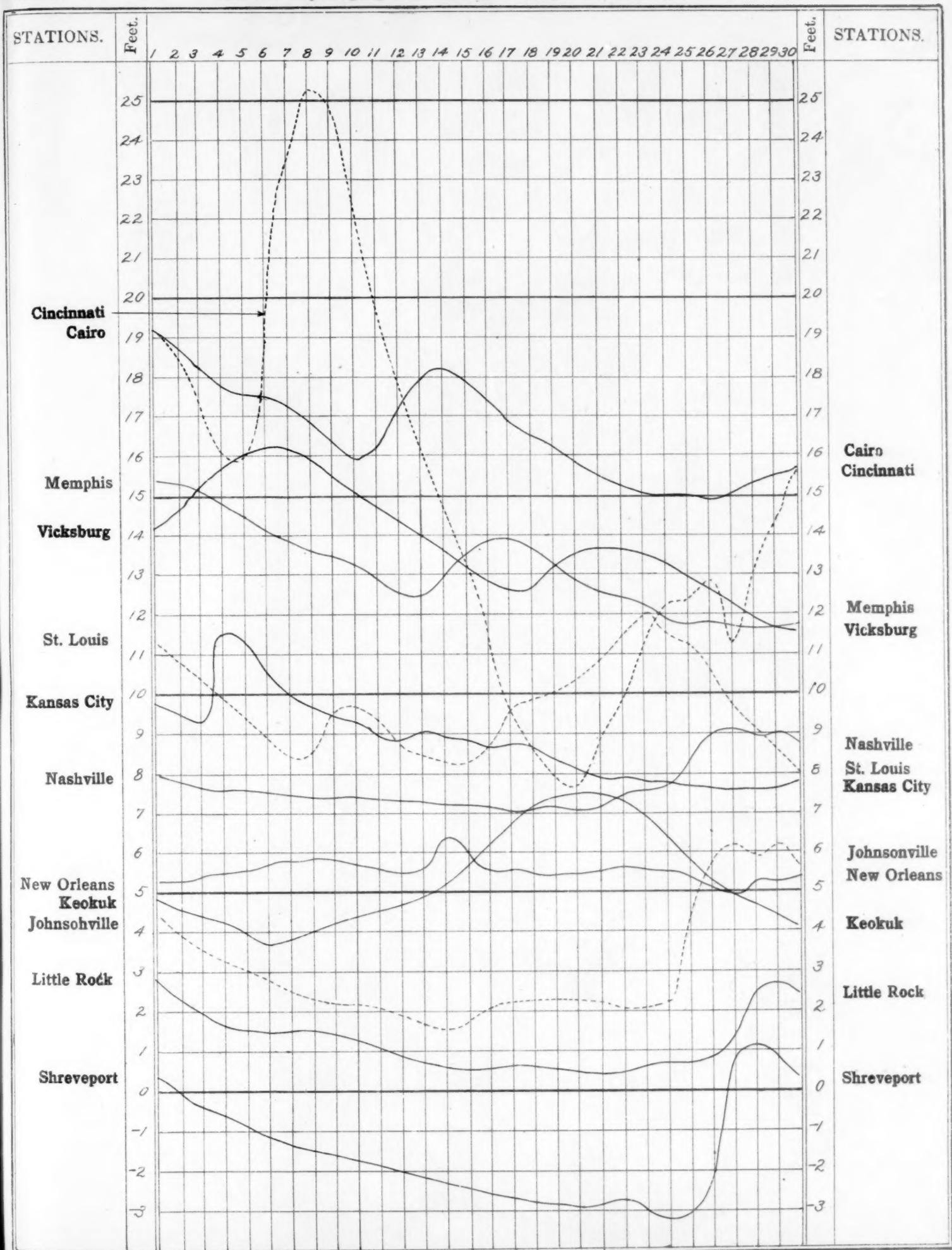
Table with multiple columns and rows, containing faint, illegible text. The table appears to be a data record with several columns and many rows of information.

Climatological Districts of the United States.



# 106 Climatological Sections of the United States.





VIII Chart II. Tracks of Centers of High Areas, September, 1912.

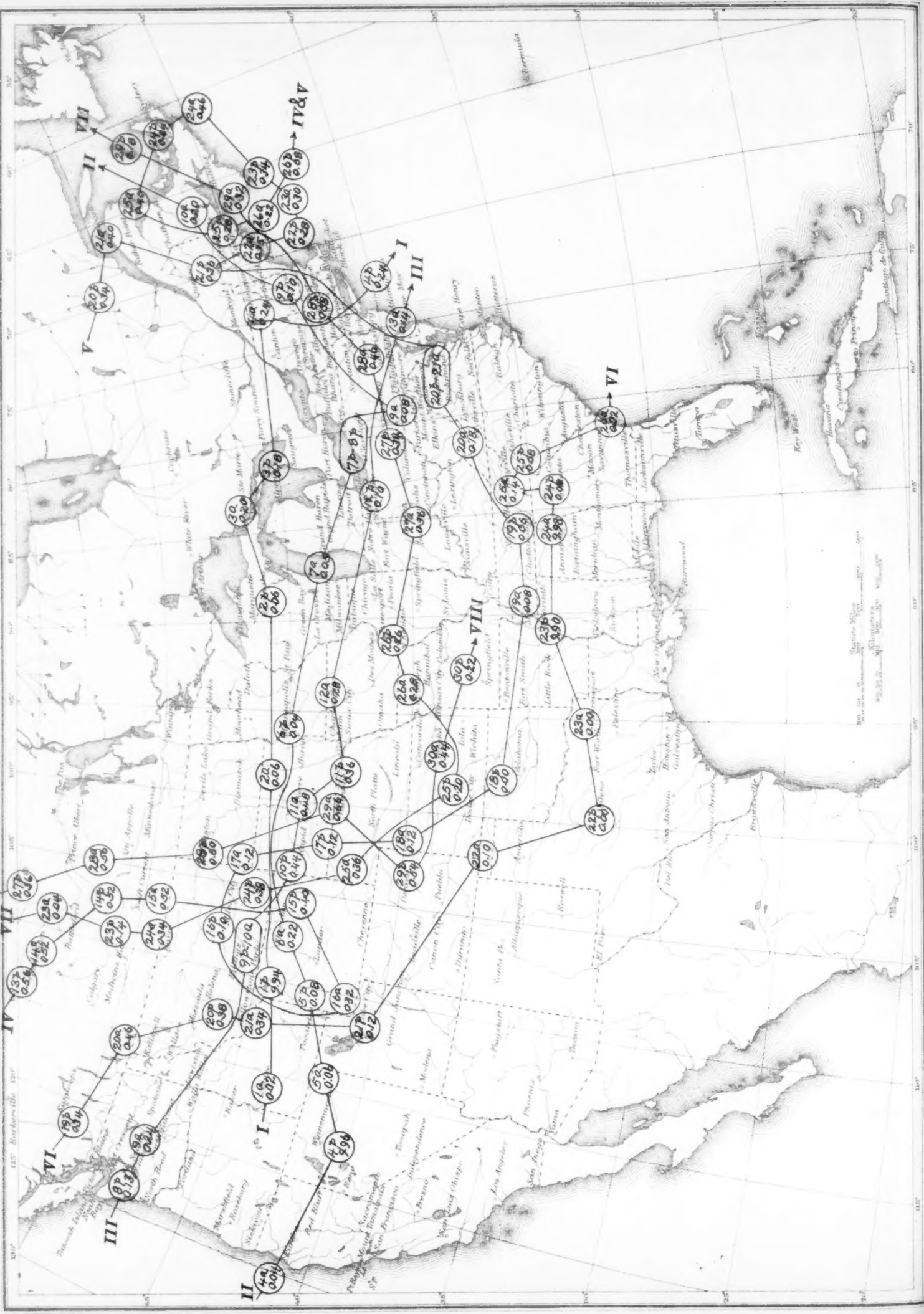


Chart III. Tracks of Centers of Low Areas, September, 1912.

Chart III. Tracks of Centers of Low Areas, September, 1912.

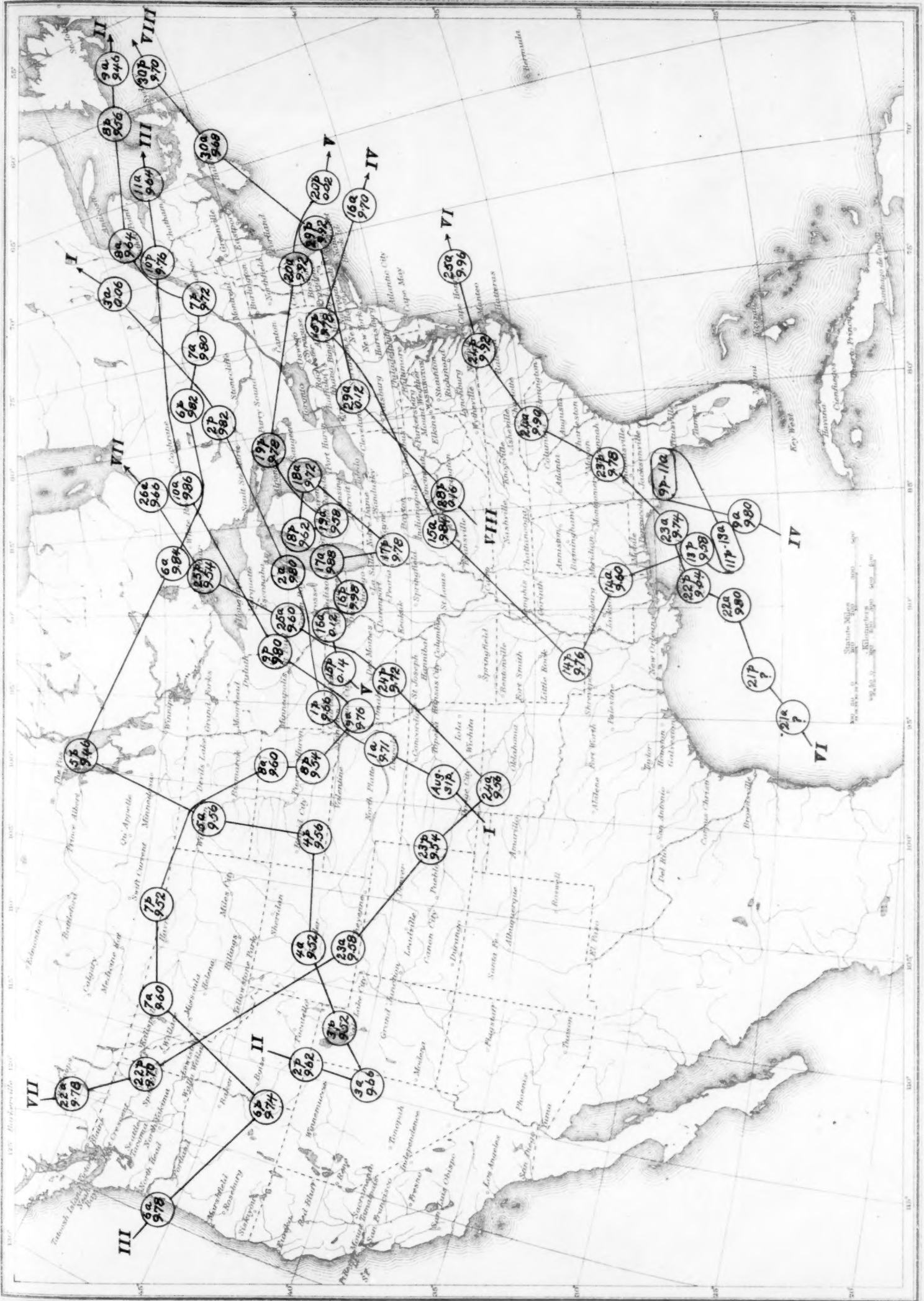


Chart IV. Departure of the Mean Temperature from the Normal, September, 1912.

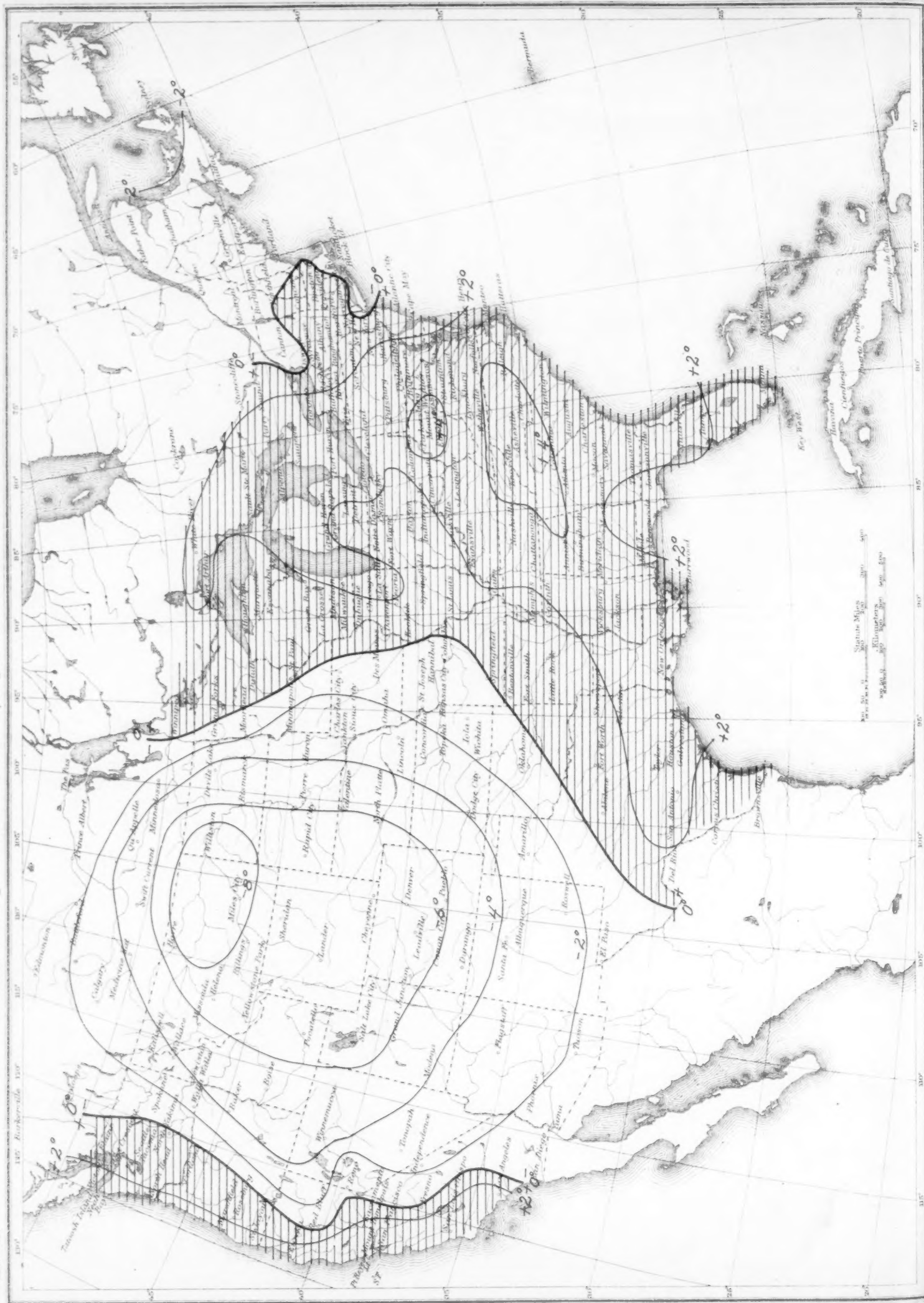


Chart V. Total Precipitation, September, 1912

Chart V. Total Precipitation, September, 1912

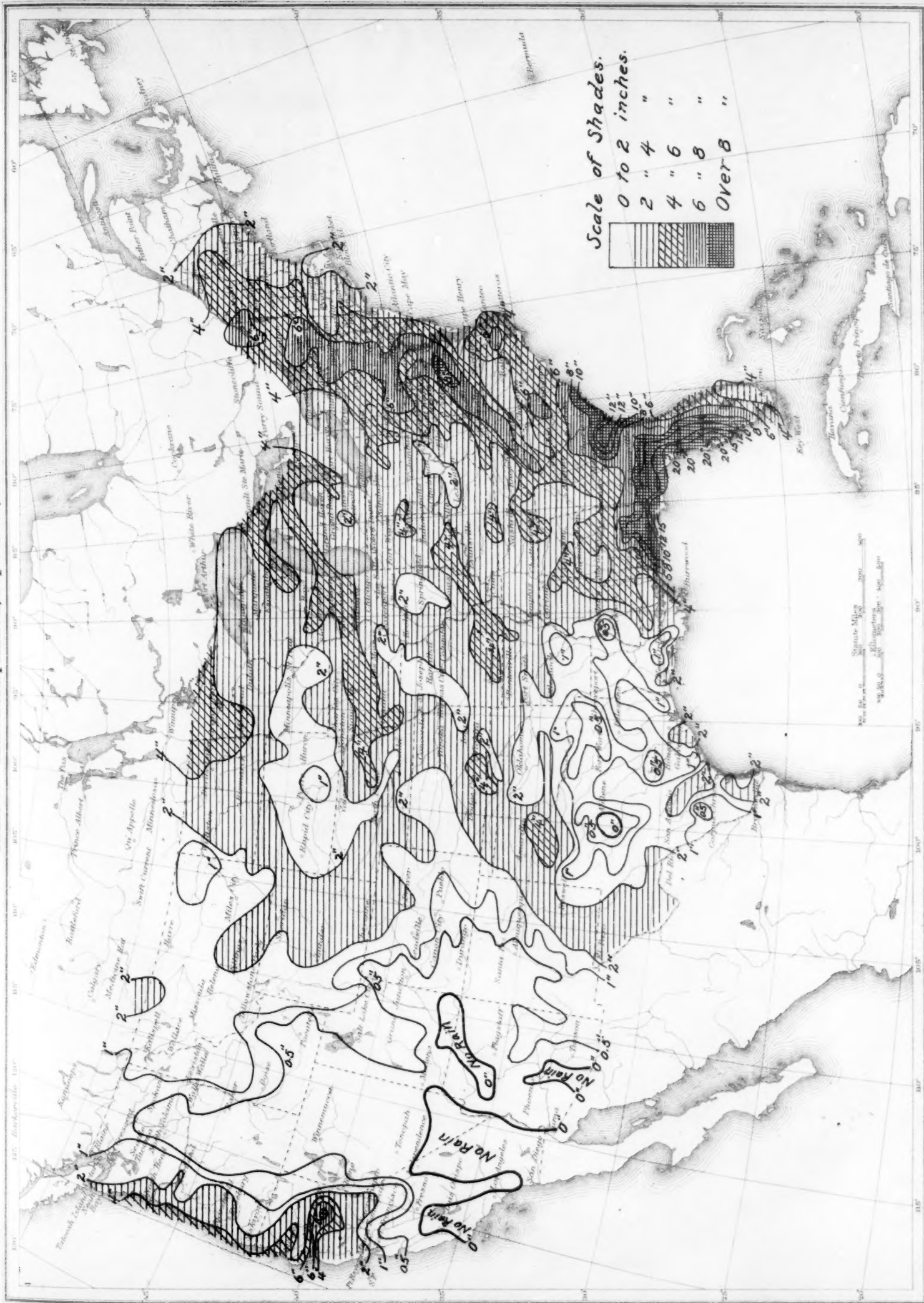


Chart VI. Percentage of Clear Sky between Sunrise and Sunset, September, 1912.

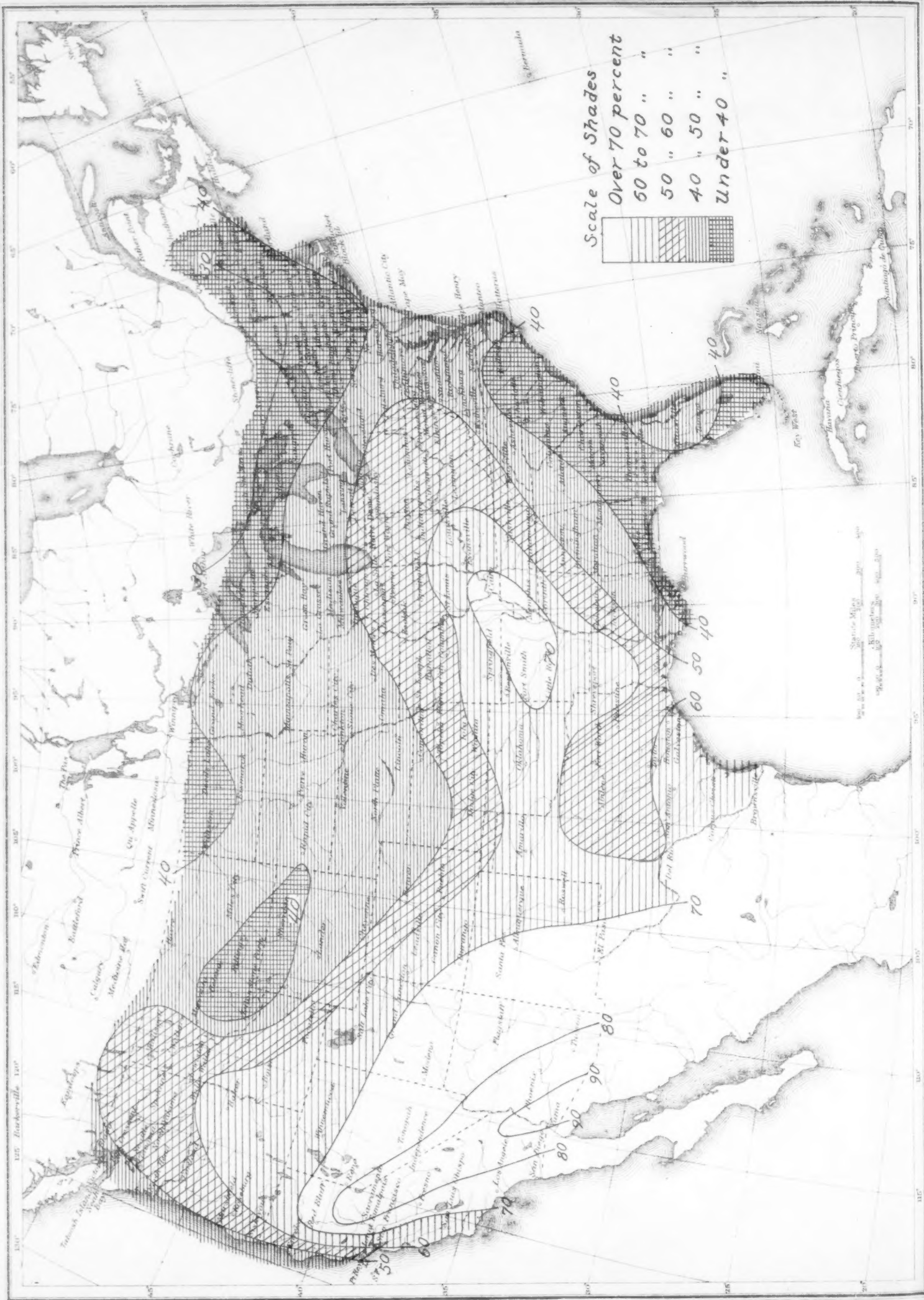


Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, September, 1912.

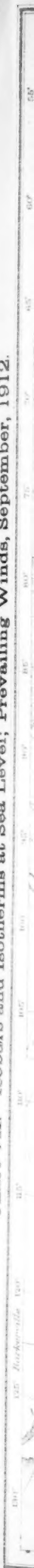


Chart VII. Isobars and Isotherms at Sea Level; Prevailing Winds, September, 1912.

